

RECORD
K3515

J. R. Fosberg
Collection number book

No. 19037 - 19843

If found please return

To F. R. Fosberg

404 Edificio Lampre Brush,
1078 Av. Jiménez de Quesada
Bogotá, Colombia

or R.F.D. #1, Holmes Run Rd.

Falls Church, Virginia, U.S.A.

Collection and Field Note Book

No. 8

(October 28, 1942 - Jan. 25, 1943)

(19037 -- 19843)

Pages

GUATEMALA	1-14	
Finca La Felicidad, near Antigua.....	19037-19038	2-3
Finca La Capitia, near Guatemala City.....		4-7
Barranca	19039-19061	8-12
SAN SALVADOR airport.....	19062	12-13
COLOMBIA.....		12-191
Cundinamarca		
Montserrat	19063-19084	12-17
Bogota-Tunja Highway		18-19
Bojaca		
Belen-Susacon summit		19
Norte de Santande		
Rio Marqua, above Bata	19085-19086	20-21
Rio Valegra	19087-19101	22-25
Finca Los Alpes.....	19102-19204	24-25
Rio Colorado	19105-19123	26-31
Rio Valegra hills.....	19124-19136	30-33
Bata	19137-19140	34-35
Rio Valegra	19141-19142	34-35
w. end of Preciosas ..	19143-19151	36-38
Samaria	19152	38-39
Bosque de Aguadas	19153-19157	38-41
Cordillera de Hoya Gr.	19162-19168	42-43
Samaria	19169-19170	42-45
Quebrada Samaria	19171-19201	44-51
Vitelma	19202-19220	50-53
Tolima-Huila		
Magdalena Valley		52-53
Huila		
Neiva	19221	54-55, 78-79
La Junta	19222-19250	54-59
F. Altadecacias, R. Neiva	19251-19259	58-61

Rio Neiva	19360-19273	60-67
Finca Las Mercedes,		
Rio Balaillas	19274-19275	66-67
Rio Balaillas	19274-19275	66-67
Meta		
Finca Tama, Rio Balsillas	19276	66-67
Rio Balsillas Valley	19277-19288	68-69
Finca Balsillas	19279-19285	68-71
Rio Balsillas Valley	19286-19291	70-73
Finca Abyssinia	19292	72-73
Finca Playon, Las Mercedes		
19293-19294		72-73
Batan	19295-19298	74-75
Rio Neiva Valley	19299-19304	74-77
Quebrada Perdiz ...	19305-19312	76-79
Rio Cabrera	19313-19327	80-83
Colombia	19328-19352	82-87
Finca El Playon ...	19353-19371	86-89
Rio Ambica	19372-19390	88-93
Buenavista	19391-19409	94-97
Rio Papamene	19412-19419	98-99
Las Lagartijos	19420-19422	98-101
Uribe	19423-19461	100-107
Rio Duda	19462-19493	108-111
Las Lagartijos.....	19494-19512	110-114
Rio Papamene Valley	19513-19527	114-118
"Cartagena"	19530-19536	118-119
Buenavista	19537-19539	120-121
Colombia-Urabe Trail	19540-19558	120-123
Upper Rio Ambica ...	19559-19567	124-125
Rio Ambica	19568	124-125
Antillas	19569-19579	126-129
above Colombia	19580-19605	128-131
Colombia	19606-19614	132-133
Quebrada Ariari ...	19615-19651	132-139
Quebrada San Blas..	19652-19662	140-141
Quebrada del Chilcal	19652-19662	142-143
Vitelmo, Bogota Water Works ...	19667-19685	142-145

(see next page)
for COLOMBIA

Taxes Church, Virginia, U.S.A.

Cundinamarca

COLOMBIA

Bogota, foothills, above 19686-19709 146-151
San Antonia, s. of 19710-19721 150-153

Huila

Finca Cedrales 19722-19728 152-155
Finca Yucales 19739-19758 126-161
Rio Fortelacillas Valley 19767-19780 160-163

Meta-Huila

Las Cruces

Summit Cordillera Oriental 19781-19783 164-167
Rio Fortelacillas hdwaters. 19804-19805 164-167
" " above Uycales 19797-19802 166-169
" " Valley 19803-19804 168-169
" " below Vega Larga 19805 170-171

Rosa Blanca 19806-19808 170-171
Palacio, hill above 19807-19808 170-171
19809-19814 170-173
n. of San Antonia 19815-19817 172-173
s. of San Antonia 19818-19822 172-173
Rio Fortelacillas 19825 174-175
San Antonia 19826 174-175
s. of San Antonia 19827-19836 176-179

Coll. Rafael Hurtado I 184-191

Falls Church, Virginia, U.S.A.

170000
Tuckahoe Church, Virginia, U.S.A.

Volume - L.

F. R. Fosberg
Collection number book
Nos. 19037 - 19843

If found please return

to F. R. Fosberg
404 Edificio Lampre Bush
1078 Av. Jiménez de Quesada
Bogotá, Colombia

or R.F.D. #1, Holmes Run Rd.
Falls Church, Virginia, U.S.A.

1942

Guatemala

1

Oct. 28, 1942

Finca La Felicidad, near
Antigua, Guatemala

A small coffee plantation, with 3 trees of Cinchona pubescens (succulenta) about 40 years old. These trees had young buds, more mature buds, flowers, very young fruit, partly grown and almost full-grown fruits, and old dehisced capsules. The bark was gray and checked into squares, these obvious on branches even as small as 1 cm. thick, and on the main trunk 2-3 cm. across. The bark was at least 1 cm. thick, the cut parts turning reddish brown very rapidly on exposure to air. Color when fresh pinkish straw-color. Leaves glossy above, much like those of Morinda citrifolia.

The coffee was bearing very heavily, the fruits full-sized but only a very few changing color yet. The trees were shaded by Grevillea robusta

trees called "gravilles".

The young plants in the seed beds, about 1-2 years old about 1 ft. tall shaded by flat frames made of corn-stalks laid close together and supported on stakes about as tall or a little taller than the tallest plants.

Coffee is a very important crop here. The coffee served at the hotels, good Guatemalan coffee, is

19037

¹⁰ *Cinchona pubescens* Vahl
planted in coffee plantation

2

Oct. 28, 1942

Finca La Capitía, 10 km. w. of Antigua
Guatemala.

Another coffee plantation said to have some *Cinchona* trees. We did not find them.

19038

Drymaria
disturbed ground, open,
near edge of coffee plantings.

good enough to be drunk black with no cream or sugar.

The corollas of the *Cinchona* have the sutures between the ^{below the sinus} lobes, very obvious in the part of the tube above the attachment of the stamens. In old corollas this is even more marked, the parts even tending to separate.

tree 1-2 m. tall, ^{with} 3-4 dm. thick.
leaves glossy above,
flowers with tube and lobes
rose-pink outside, whitish
within, hairs on $\frac{1}{2}$ margin
of recurved lobes white.
Odor sweet but not strong. Leaves
extremely bitter.

Here the coffee was shaded by the other tree commonly used for this purpose, the *chalam*, *Inga* sp.

spreading to somewhat
ascending. fls. whitish.

Oct. 29, 1942

Finca Las Chancas, near
Guatemala City,
Guatemala.

A large diversified
plantation run by
Sr. y Sra. Rafael Piñol (Blates)

These people are trying
a great number of different
crops, mostly on a rather
extensive experimental
basis.

They have 50 or more
species of Eucalyptus
growing in an experimental
plot, many of them large
~~old~~ trees. Some have
produced a remarkable
growth in 12 years -
I would guess 75 ft. Four
or five species are grown
in quantities large
enough for commercial
utilization as oil sources.
Time was not available
for careful checking of
what these species were
or collecting of specimens.

Pimenta racemosa
was also produced, to
what extent I did not
ascertain.

A large number of

trees of Cinnamomum
camphora were growing,
many ready for production.

Manufacturing apparatus
for extraction of the oil had
been designed and built
by the owners.

A considerable planting
of young Cinchona trees
was doing well. These
were growing in an open
dry sunny field, black
friable well pulverized
soil. Each plant was
surrounded by a shallow
furrow. The weeds were
turned under in the center
of the space between the
rows, making a low
ridge of soil. The
plants, 2 and 4 years
old, about 1 and 2 m.
tall, respectively, bushy,
much branched, were
in full bloom, heavily
loaded with flowers
and young fruit. The
extremely sunny
situation may have
had something to do
with the early abundant
flowering. The plants
were from seeds said to
have been imported from

Java. They were extremely variable in leaf shape, lustre and pubescence. The narrow leafed ones had a dull upper surface while the broad and medium ones were shiny. The broad leafed ones varied from glabrous to shortly velutinous. Corolla tube length also varied from less than 1 cm. to 2 cm., color from deep pink to white. The broad leafed plants had ample inflorescences, while the narrow "Lederiana" type had very small thyrses.

In the seed beds the plants were allowed to reach a height of 3-5 dm. before transplanting, and some were in flower already.

Seed production was already in operation, and Mrs. Pissol said they were going to attempt selection of good seed strains.

Several interesting nursery practices were in evidence. A split flower pot, made in the pottery works right on the finca, was used for young plants to be set

out. The two halves were bound together with cords, and when the transplanting was done, the cords were loosened and the root-system and soil could be removed intact.

Experimentation was being carried on with use of the hollow ~~or~~ bamboo-like joints of the stem of a tree-dahlia, Dahlia sp. for pots. These are up to 5-6 cm. in diameter and 1-2 dm. long, cut with the node at the bottom. When the seedling grown in the section was ready to transplant the whole pot was set in the ground. Within 3 months the pot had rotted away, adding humus to the ground. The dahlia is a native species growing right on the finca.

45

Oct. 30, 1942 Barranca just north
of Guatemala City

Guatemala

Flat top of erosion remnant
between two arms of barranca.
rather dry fine soil, open
grassy meadow surrounded
by oak trees on edges of cliffs

19039

Borreria

common in weedy spots

40

Lithospermum

scattered in ~~the~~ grassy place

41

Polygala

shaded spot among shrubs

42

Polygala

open weedy place

43

Levisticum

among shrubs and tall ~~the~~ herbs

44

gymnema

shaded place

45

Apismenus

shaded place

46

Salvia

among shrubs

47

Hydrocotyle

shaded under oaks on edge

of barranca

48

Nyctaginea

shaded under oaks on edge

of barranca

49

Quercus

abundant on edges and walls
of barranca, one of principal components

A conspicuous feature ~~the~~
was corn planted on all except
the truly vertical walls
of the barranca. Some of
the fields could not have
been more than 10-15° from vertical.
A native said they produced
3 crops a year.

flowers white.

flowers white

flowers purple

flowers deep violet

~~red~~ corollas blue-lavender,
herbage aromatic.

weakly ascending or

reclining

aromatic herb 2 m. tall,
corollas deep ~~purple~~ ^{crimson} purple
inflorescences erect.

creeping, flowers greenish,
petals paler, fruits gomphate,
spherical.

tree 6 m. tall, sterile,
none seen with fruit.

19050 *Carex*
fairly common in open places

51 *Quercus*
abundant on edges and walls
of barranca, one of principal
components of vegetation.

52 shade of oaks on edge of
barranca.

53 *Bouvardia*
occurring in shade of oaks, on edge of barranca

54 *Cusaea*
common in bushy or wooded
spots.

steep walls of barranca

55 *Erica* - ~~Erica~~
open place on cliff

56 *Borreria*
in trail

57 *Cattleya lobata*
common on cliff

58 *Borreria*
in trail on cliff

59 *Cuphea*
under trees on cliff

tufts, culms somewhat
spreading.

tree 3 m. tall, upper
leaf surface dark green,
lower ~~less~~ glaucous.

shrub 1 m. tall, stems
green, fruit reddish.
corollas vermillion,
basal 3 mm. of tube hispitate
within.

sprawling herb, flowers
violet, paler in sun
than in shade.

sprawling shrub, several
meters long, branchlets
tending to be in one plane, but
not always so, flower
spikes ~~not~~ pendent.
corollas white.

flower brilliant magenta,
sepals paler, lip emarginate,
plants varying with exposure
or shade, up to $1\frac{1}{2}$ m. tall,
stiff, leaves stiff.
corollas white

suffrutescent, sprawling,
up to 1 m. long, branches erect,
upper petals erect, deep maroon,
caducous, lower ~~scarlet~~ tiny, calyx tube scarlet.

12

1942 Guatemala - El Salvador - Colombia

19060

Centaurium

shaded ledges on cliff

L. 61

Bobertia Diastatea microantha (HBK) Mev.
shaded ledges on cliff det. Mev.Oct. 31, 1942 the airport at
San Salvador, El Salvador62 *Drymania*

weed in recently cultivated garden.

curved

13

limb of corolla pink, tube white.
corolla blue-violet, turning
purple with wilting.spreading herb, rooting
at nodes, the deflexed
fruiting pedicels very easily
detached and quite viscid,
adhering ~~soot~~ to anything
and carrying the deliquescent
or nearly ripe ovary
with it!

11

Nov. 3, 1942 Monserrate, above
Bogota, Cundinamarca, ColombiaWet brushy vegetation
largely Ericaceae and Melastomaceae
on mountain top, somewhat
grazed.

63

Nicotia parvifolia Cogn. det. T. S. Wurdack 1969

around a small hummock, rare

64

Thibaudia Vaccinium
an abundant plant inprostrate, flowers white.
shrub 1-2 m. tall, flowers
waxy-red, corolla lobes
paler, greenish red. leaves
quite variable on different
individuals. Leaves, ~~and~~
flowers and inflorescence stiff.

19065

Gaultheria cordifolia HBK. (var. aff.)
occasional

66 *Cestrum*occasional ~~occasional~~67 *Galium*

inconspicuous in hummocks

Galium hypocarpum
~~vine-like, climbing~~
~~shrub~~, occasional

69 *Hypericum mexicanum* var. *platyphyllum*
occasional

gl. Cuatr.

70 *Pennellia* *Gaultheria*

occasional

71 *Brachyotum strigosum* (L.f.) Triana

common

72 *Hedysotis* (*Acetosella*)

common

73 *Befaria phyllyriaefolia* Benth.

occasional

74 *Centropogon lophocampylus* columnaris

common

(L.f.) D. Don

flowers scarlet, fruit black,
leaves stiff, noticeably
reticulate and sometimes
reddish beneath.

up to 3 dm. tall, flowers
dark purple outside, pale greenish
within, lobes of corolla patent,
prostrate, moss-like.

flowers & fruit greenish.

wine-like, climbing
to 1 m. in shrubs, fruits
bright orange, fleshy.

flowers greenish.

erect, to 2-3 dm., very
viscous, leaves stiff.

flowers yellow

shrub, 5 m. tall, flowers

white, fruit bluish tinged.
erect to 4-5 dm. tall, flowers
pendent, calyx scarlet,
corolla dark purple.

diff. erect shrub, to 0.5 m. tall,
leaves white beneath,
corolla 4 lobed, white,
purplish outside, as in buds,
corolla lobes patent and
somewhat recurved toward
apex.

low shrub, to 2 dm. tall,
bushy, corollas cylindric,
crimson. leaves white beneath.

erect shrub 0.5 m. tall (others seen
up to 1 m.), leaves tawny beneath,
corolla orange, lobes dark greenish.

1942 Colombia

16

190, 75 *Hypericum brathys* Smith
common

76 *Muehlenbeckia tannifolia* HBK.
occasional

77 *Cavendishia cordifolia* (HBK.) Hoer.
occasional

78 *Eupatorium Baccharis*
abundant on slopes

79 *Miconia ligustrina* (Lam.) Tr.
abundant, a conspicuous
part of vegetation

80 *Baccharis*
in eroded place

81 *Echeveria bicolor* (HBK.) Walt.
just back of top of cliff,
~~on talus~~

82 *Eupatorium Stevia*
just back of top of cliff

83 *Plantago linearis* HBK. var. *agrostophylla* (Swartz)
in small hummock

84 *Calceolaria*
common on slopes

Cundinamarca

17

erect shrub, to 3-4 dm. tall,
usually smaller, fls. yellow
vine, climbing over bushes,
fruit black when ripe, fleshy
shrub 1.5 m. tall, leaves
glaucous beneath, bracts
reddish, translucent,
corolla red, fruit red when
ripe.

shrub 2 m. tall, flowers
dirty white.

shrub 2 m. tall, flowers
and fruit white.

flowers whitish, shrub
2 m. tall, leaves aromatic when broken,
stems branching, spreading
~~leaves~~ thick, leaves
very fleshy, shiny,
easily detached, racemes
ascending, corolla deep
orange outside, yellowish
within, stiff.

shrub 1.5 m. tall, flowers
white.

caespitose

shrub 2 m. tall, leaves
shiny, paler beneath,
flowers deep magenta,
conspicuous, buds
glutinous.

Nov. 9, 1942 Highway from Bogota to Tunja. Had no time to collect any plants. Much of the trip was through the Sabana, a long level valley. The road follows the river part way and the foot of the hills part way. Wheat seems to be the principal crop, with potatoes (papas) secondary. The potatoes have purple flowers. There are no forests in the Sabana, nor on the bordering hills. Eucalyptus globulus is extensively planted, the bark being used for tanning and the wood for posts.

Near the northeast end of the valley are a great many small coal mines, simple shafts dug into the rolling hills. The coal is low grade. Might be very worth while as a fossil collecting ground.

Between Villa Plinio and Tunja ~~is~~ are hills with interesting brushy vegetation and scrubby forest. Much of it has been destroyed by cultivation. The top 2-3 dm. of soil is

amazingly black - almost as though mixed with coal. Wheat, corn, & potatoes seem to do very well. In places they are planted on ~~as~~ amazingly steep slopes. Near Tunja the erosion has proceeded to a serious extent. The sides of the ravines or valley are deeply gullied.

Nov. 10, 1942 - summit between Belen and Susacón, Boyaca about 11,000 ft.

Occasional habitations even at this altitude. Wheat and potatoes are cultivated. Eucalyptus globulus still survives here, though not numerous.

Rodriguez says this is a weakly developed paramo. A large species of Espeletia is abundant and I took several photos. Small bushy Wernmannia trees, 2-3 m. tall are fairly common.

9 Nov. 11, 1942 Rio Magdalena
Bata, 36 km. 15° S. of La Plata, N. de Santander, 1230 m.
Mun. de Toledo (Altimeter reading 3900 ft.)

Got two small samples of
corn seed to send to Anderson.
One was white, the other yellow.
Got them from a store.

Most of the level or even
reasonably sloping ground
here is in coffee, shaded
by Inga sp., a dense, flat
topped tree.

Climbed down to the edge
of the river, where there were
great moss-covered rocks,
with Peperomia, Piper, Tradescantia,
and numerous other plants
growing under the trees.

Collected a giant Panicum and
Trichomanes.

190,25 Trichomanes hymenoides Hedw. det. B. O. B.
on a moss-covered rock near
river, but not at present splashed.
P. laccata L. laccata is divaricata?
several m. above edge of
water on rocky slope.

Thallus-like fronds semi
prostrate on rock.

clumps of a number of
immense culms, 5-6 m. tall,
bushy toward top.
Local name "chusque"

62

Nov. 14 - Cleared slope,
grown up to bushes, *Pteridium*
and grass - the bushes
mostly Ericaceae and
Melastomaceae, the grass
mostly *Melinis minutiflora*.
Toward top a great deal of
Rynchospora.

altimeter reading 5700 ft.

19037

Melinis minutiflora
open pasture

6000 ft.

88

Weinmannia

brushy slope, ^{dominated both}
^{in front, along and}

89

Myrsine (hapanea)
brushy slope

90 *Coccocypselum*

under bushes in grass

6300 ft.

91

Baccharis

brushy slope

92

Gaultheria

brushy slope

93

Befaria

brushy slope

94

Pteridium aquilinum

slope covered with ferns,
sedges and small bushes

Río Vallesca drainage,
ridge ridge between ~~Rios~~
at w. of mouth of Río
Colorado. corr. Chucarima
Mun. de Chitagá,

Norte de Santander

35 km s.e. by s. of Pamplona

viscid, with a sweetish
odor, infl. purplish red.

[considered one of the best
forage grasses in Colombia]

slender shrub 3 m. tall, ^{very}
"cascazo" used ^{for} ~~for~~ tanning ^{but} tree

shrub 2 m. tall, bushy,
fruit black, flowers whitish,
stigma fleshy, translucent.

flowers & fruits mixed.
prostrate herb, flowers
lavender, fruits pyriform,
fleshy, many seeded, bright
blue.

bush 2 m. tall, fls. whitish.
Very abundant in vegetation.

bush 2 m. tall, very abundant.
racemes somewhat drooping,
red, fruits black.

bush 1.5 m. tall, abundant;
flowers rose-pink.

up to 1 m. tall, one of the
dominant plants.

24 1942 Colombia

✓ 19095 *Gleichenia*
edge of trail on bushy slope.

✓ 96 *Chaetolepis microphylla* (Burm.) Moq.
in small openings on bushy slope.

97 *Borreria* 6500 ft.
grass and fern covered slope

✓ 98 *Eccremis coarctata* (R. & P.) Balf.
grass & fern covered slope

✓ 99 in grass on ridge

✓ 19100 *Rhynchospora*
grassy ridge

✓ 01 *Borreria*
grassy ridge, common

Nov. 14 - Finca los Alpes, on
quebrada el Cedro (los Indios), ~~the~~ affluet
of Rio Valegría, ~~fraction of Carrizal~~
Norte del Santander ~~etc~~

✓ 02 *Cinchona pubescens* Vahl 5700 ft. and berries. Large tree, ^{some of} leaves at top
wall of ravine in bottom TC 0.93 red, bark whitish, very
of valley ^{8100 ft.} bitter. leaves collected are
large shade leaves.

✓ 03 *Helicocarpus popayanensis* HBK.
~~the~~ edge of yard in cultivated
land.

✓ 04 *Sambucus*
in yard of finca

✓ 25 Norte de Santander 25

2 - 3 dm. tall.

flowers yellow.

fls. whitish.

small loose clumps,
fls. lavender blue (stamens 6,
yellow)

fls pink

one of dominant plants
near top of ridge. small
clumps.

flowers white.

✓ 05 *Cinchona pubescens* Vahl 5700 ft. and berries. Large tree, ^{some of} leaves at top
wall of ravine in bottom TC 0.93 red, bark whitish, very
of valley ^{8100 ft.} bitter. leaves collected are
large shade leaves.

✓ 06 *Helicocarpus popayanensis* HBK.
tree 8 m. tall, spreading,
fruit mature "Balsó"

✓ 07 *Sambucus*
small tree, 3 m. tall, flowers
white. "lance" infusion
of fresh flowers - used for
fever or pneumonia in
infants and for avert trouble.
said to be native of country.

Bought a number of ears of corn here out of a pile in the man's shed. A considerable number of different looking forms were evident. ~~that~~ I picked out a fair representation.

#7 Cob 21.5 cm. l., 2.3 cm. thick, cylindric. 10 rows. bracts dark purple at base.

#8 Cob 20 cm. long, 2 cm. in diam. cylindric. bracts white. 8 rows.

Nov. 15
Río Colorado, just above
confluencia with Río
Valegia, ~~Río~~ Río Chucarima,
Norte de Santander

alt. rating 5300 ft.

mossy log in woods along
small creek.

Nov. 15
Río Colorado

19105

Carval
Chucarima ^{cylindric} #1 cob 19 cm. long, 3 cm. thick. bracts tinged with purple. 14 rows of kernels

#2 cob 19 cm. long, 3.5 cm. thick at base, ^{tapering} bracts white. 11 rows.

#3 cob 15 cm. long, 4 cm. thick at base, tapering. 12 rows. bracts white.

#4 cob 13.5 cm. long, 3.5 cm. thick at base, tapering. 12 rows at base, irregularly spiral. bracts white.

#5 cob 20 cm. long, 3.5 cm. thick, only slightly tapering. bracts slightly tinged with purple. 14 rows.

#6 cob 20 cm. long 4 cm. thick at base, tapering. 16 rows. bracts very slightly purple.

creeping

Nov. 15
slope w. of lower part of
Río Colorado just above ~~its~~ confluence
with Río Valgrá, Com. Chucarima, Mun. de
Chitaga, Noto de Santander, Alt. reading 6000 ft.

19/06 ~~Thick woods~~ partly cleared slope.

19/06 *Hedysarum*
7 thick woods along ravine

19/07 *Juncus*
wet place in trail

19/08 *Eleocharis*
wet place in trail

19/09 *Xyris*
swampy place in clearing

19/10 *Utricularia*
wet mud & wet white sand
in clearing

19/11 *Lymbolanthus*
edge of thick woods

19/12 *Utricularia* 6300 ft.

among brush in clearing,
not especially damp

on mossy tree trunks

19/13 edge of wooded ravine

19/14 edge of wooded ravine
abundant.

19/12 a *Thlaspi*

Tree 6 m. tall, nodes
much enlarged, fruit
very fleshy, white, achenes
in pits.
tufts.

spreading tufts.

tufts, flowers yellow.

leaves lance-linear,
flowers yellow.

shrub 2 m. tall, fruit
with a strong apple odor.

leaves peltate, flowers
lavender.

prostrate

tree 6 m. tall, fruit green
small tree, 8 m. tall, fls.
reddish.

19116 *Ladenbergia* ~~in~~ *in*
in densely wooded ravine,
fairly abundant.

26 Nov. 15
E. slope of valley of quebrada
el Cedro (Los Indianos), toward
head, Fracción de Cañajal, Mun. de Chitago,
Norte de Santander A.R. 8000 ft.

Thick jungle
Ladenbergia

19117
19118

slope
~~Grammitis~~ *Kiphopteryx* *truncicola* (Klotzsch)
~~folia~~ *procera* det. D.B. Leibinger 2/5/69
near top of 15 m. tree (19112)

20 *Polyodium*

near top of 15 m. tree (19112)

21 *Cinchona officinalis*

22 *Palicourea*

23 *Palicourea*

24 Nov. 14 - Hills e. of Rio Valegrá s. of
quebrada Valegrá, ^{lomas} Barrios Chucarima,
Mun. de Chitago. ^{lomas} Norte de Santander
Tall forest being felled, gently
sloping ground. about 6500 ft.

24

25

And. Bellis: *Phoebe* spreading tree about
15 m. tall, wood very
hard and strong, flowers
white, fragrant. leaves
dark green, very revolute.

T.C. 07

fruit immature
tree 15 m. tall, with an
oily odor when broken.

pendent

small tree 7 m. tall,
"guina blanca" or "guina tina".
bark rather thin, white inside.
scandent shrub 3-4 m.
tall, resting on trees. flowers
greenish, fruit blue.
tree 10 m. tall, fls. yellowish
green, fruit immature.

small tree
shrub

19626

27 *Hippotis albiflora* Karst.28 *Abies*

29

30

31 *Aphelandra*32 *Stromanthus tonkat* (Aubl.) Eichl.

33

open bluff, burned some time
before.

18

Nov. 16 same but below quebrada
Valegra. ~~about~~Ravine on high open rocky
summit34 *Cinchona pubescens* Vahl

And. Bellis

940 0.93
5 0.08
5 0.08

TC. 1.52

35 *Ladenbergia*
In damp wooded wet ravinestump sprouts 4-5 m. tall,
7-9 cm. thick, from old felled
tree, some leaves red, flowers
pink, fragrant.slender tree about 7 m. tall,
flowers whiteNov. 16 Hills above Bata, Valley
of Rio

5500 ft.

36 *Palicourea*
partly wooded ridgesmall tree, flowers yellowish
green, fruit immature.small tree, corolla
whitesmall tree, flowers green,
fruit immature.

vine, fruit immature.

shrub, flowers bright
purple.shrub 2-3 m. tall, flowers
scarlet, bracts reddish
green.shrub with enlarged nodes,
fruit fleshy, orange.herb 1 m. long, weak,
flowers scarlet.shrub 3-4 m. tall, flowers
red, fls. yellow

10 Nov. 16 Bata, Mun. de Toledo,
Río ~~Guadalupe~~, Norte de Santander
" 000 ft.

Ravines above River

19137

steep slope

19138

Jussiaea peruviana L.
wet place

19139

Jussiaea suffruticosa L.
wet place

3

Nov. 18 ~~Guadalupe~~ mouth of Guadalupe
Quemado, Fraction Carrejo de
Mun. Chitaga, 40 km. s.s.e. Pamplona,
Norte de Santander 6400 ft.

steep grazed hillside

19140

Ranunculus
common

4

Nov. 19 Rio Valegrá, just above
mouth of Guadalupe Quemado,
Fraction Carvajal de Mun. de
Chitaga, 40 km. s.s.e. Pamplona,
~~Norte de Santander~~ 6400 ft.
dry bushy ~~bluff~~ ^{dry} ~~bluff~~ bluff
above the River

19141 *Castilleja*

occasional

19142 *Tournefortia*

~~grazed~~ ^{grazed} bench

"flora de Santander"

shrub 3 m. tall, flowers
magenta, anthers deciduous.

~~shrub~~ subshrub, up to 1.5 m.
tall, flowers yellow

herb up to 1 m. tall, flowers
yellow.

fls. bright yellow

bracts red, flowers yellow
herb up to 1 m. long, weak,
spreading tree 5-7 m. tall;
"quejiso", the tasteless
fleshy white fruits eaten
leaves of water sprout
much larger, ternate.

31 ✓ Nov. 12 - very steep slopes on w. end of Preciosas, Rio Valgrande above mouth of Quebrada Guemalo, Fraccion de Cañaveral de Mun. de Chitagá, 10 km. s. s.e. Pamplona, Norte de Santander 7750-8000 ft. moist, somewhat decadent forest on very steep rocky slope, openings filled with dense brakes of Chusquea (?) esp. *richardii*

1943

99 *Begonia*105 *Poly podium*

on log

116 *Cephaelis axillaris*,
in open understory,47 *Palicourea*48 *Cinchona pubescens* Vahl
shade

49 *Cinchona pubescens* Vahl
edge of opening anal. bellis.
trunk 8.7% limb 8.4% 1.1% limb TC 2.1%
ci 1.4% ci 0.9% trunk TC 1.9%, 2.1%
gu 1% gu 0.1% trunk TC 1.9%, 2.1%

50 climbing on *Cinchona pubescens*

51 *Cinchona officinalis* -
100% *C. pubescens* -
Qa 0.5 8.4% 6.6%
cd 0.1 (250, 7.7%)
ci 1.4%
gu 1%

anal. bellis. -
7 T.C. 8.2%
no %
mostly c.

All of the slopes that are gentle enough (70°) or less, to hold any soil are cleared. Forests persist on the cliffs and in extremely steep headwaters of small quebradas. In these in this vicinity, there seems to be much *Cinchona*. Two

fl. greenish yellow,
pseudobulbs terete,
woody vine, flowers
white, said to be used
to treat pneumonia.

shrub 1-2 m. tall,
fl. stem green, fls. white,
fruits blue
small tree, flowers yellow,
waxy.

seedling or sprout
leaves & stipules very large,
stipules recurved.

Tree 15 m. tall, fls. pink,
some leaves pink. Some
inflorescences very large.
(dark sample, both from trunk
and branches.) "Guina Tuna"
vine, fls. white.

tree, sterile, leaves green
or very sl. reddish or even "Guina Blanca"
(dark sample)

kinds are all the quineros here know about and all that we saw. The "quina blanca" here is the same as that on Quebrada de Cedro. The "quina tuno" here is practically the same as the "quina amarilla" of Gu. de Cedro. The only noticeable difference is that this one has recurved stipules. The trees observed here are quite uniform. At 7750-8000 ft. the "quina tuno" is quite abundant, scattered all through the forest. Seedlings and

sprouts are abundant. The leaves of these are larger, but the stipules are reflexed.

Pieces of branch on the ground send up sprouts as do the barked stumps. A ~~bark~~ barked log showed areas of green, as though ~~spontaneous~~ metabolism was still going on where areas of cambium remain. A couple of tons of bark have been taken out two months ago.

6

Nov. 17, - Samaria, on Rio Chitaga
at mouth of Quebrada Samaria, Mun.
de Chitaga, 34 km. s. of Pamplona,
Norte de Santander 8500 ft.

1942 *Metere granadensis* (L.f.) Dunc
moist bank a few m. above stream.

26

Nov. 19 Bosque de
Aguadas, ^{part of} Mun.
Chitaga, ³⁷ km. ^{e. of} s. of Pamplona,
Santander del Norte 8500 ft.

57 *Cinchona officinalis* L.
moist woods

cir. 2.3%
qui n

Anal. Bellis
g + c 3.3%
T.C. 5.6%

from stump sprouts. (Brought in by guide) (Bark sample)
leaves clear green, except on some twigs the petiole + lower midrib red.

19124 moist wood.

55 *Palicourea*
moist woods

56 ~~moist~~
moist wood

56 *Ladenbergia* ~~moist~~
moist wood

57 *Cephaelis axillaris*
moist wood

14

Nov. 19 - high bushy Ridge n.
of Quebrado Guemada, fraction
Conejo de Mun. de Chitaga,
26 km. e. of s. of Pamplona, N. de
Santander 7500 ft.

high bushy ridge

58 *Penetrea prostrata* var. *penlandii* (DC.) Stev.

59 *Paepalanthus schlimii* Koen.

60 *Mertensia granadensis*
on ground under bushes

61 *Hedyotis*

tree 15 km. tall fls. whitish,
shrub 2 m. tall, fruit
green.

~~shrub with yellow flowers,~~
~~flowers white~~
tree 15 m. tall, fls. white,
very fragrant, fruit bath,
green and delicious.
shrub with green stems
white flowers.

dwarf shrub 2-3 m. tall,
fls. white, fruit black,
fleshy, said to be inedible.
~~attenuate~~ to stem
up to 1 dm. long.
prostrate, forming a mat,
berries coral, translucent,
subglobose.
shrub up to 1 m. tall, fls. white.

15

Nov. 19 - Cordillera de Hoya grande
head of Quebrada Guemada.

Norte de Santander

11000 ft.

high rocky summit ridge.

Vaccinium

crevices and ledges,

163 *Hedysotis*

open ridge

164 *Oxalis*

crevices

165 *Brachynum*

just below crest

66 *Calceolaria microleptaria* Kraenzl. subsp. *microleptaria* M. M. M. M. Molan
ledges below crest

1982

67 *Castilleja*

ledges below crest.

68 *Hedysotis*

open windswept slope

5

Nov 19 - Samaria, ^{at mouth of quebrada Samaria,}
valley of
Rio Chitaga 10 km. above Chitaga.
Mun. de Chitaga, 34 km. s. of Pamplona
Norte de Santander

roadside

8500 ft.

forming a dense mat, fls.
red.

shrub 5 dm. tall, fls.
white.

fls. reddish yellow

diminutive tree fern, with
trunk up to 1.5 m. tall. Has
appearance of *Asplenium*
revoluta.

flowers sulfur yellow,
lower lip inflated.

calyx red with yellow
edge.

prostrate, forming a mat that
clings very close to the ground,
fls. white, turning purplish.
(quite distinct in appearance
from the looser similar
plant that is common in
the region.)

tall, semi-erect shrub,
involucres dark purple, fls. white
branches with long spines, long coarsely

44

1942 Colombia

19170

climbing in tree by roadside

26

Nov. 19, 1942 quebrada lamarie,
Mun. de Chitaga
Norde de Santander

9300-9500 ft.

Open gentle slope, somewhat
over-grazed, owing water
here and there, white sand
with some humus.

L 71

Lobelia tenera

Norde de Santander 45

scandent shrub, fls.
bright red.

L 72

Xyris

L 73

clump of bushes and trees

L 74

Eriocaulon

L 75

Gaultheria

L 76

Habenaria
abundant

L 77

Hypericum

L 78

edge of clump of trees

fls. purple with greenish white
center, varying in intensity
of color. Rare here, commoner
on other sides of mountain
at ^{about} same alt. not seen
except in white sand.in dense grass tufts
small tree 5 m. tall, leaves
stiff, fruit yellow, oil of
seed ~~red~~ scarlet.small groups of rosettes
underground stems
branching. Peduncles flat
dwarf shrub 3 dm. tall
berries white with a strong
purple tinge.flowers cream-white & greenish
shrub up to 7 dm. tall, fls. yellow
short vine, 1 m. long, leaves
glossy beneath, flowers
vermillion.

17178 *Senecio*

same loc.

rocky crest of small ridge 9800 ft.

80

Alchemilla

81

Viola

83

abundant in open places from
8500 to 11000 ft.

84

Lycopodium

85

same loc.

86

Bartsia

10300 - 10500 ft.

rocky ledge on ridge

87

Blechnum

rocky ledge on ridge, common

88

Anisognathus

rocky ledges on ridge

89

*Hedysarum*on small trees in open springy
place

Norte de Santander 47

lowest altitude observed,
much more abundant
higher up. Shrub up to
1 m tall, leaves terete, with
a resinous odor when broken,
fls. yellow.erect, rays white, disk yellowish
- prostrate
- prostrate, mat-forming, ~~long~~
flowers white with purple
markings on lower petal.
Cleistogamous flowers down
in mat.densely pulvinate, length
of peduncle varies in different
colonies.creeping, fruiting branches
and secondary vegetative
branches erect.
pulvinate

stems & fls. purplish.

leaves erect, stiff

erect shrub, 5 m. tall, fruiting

forming a loose mat, the ~~long~~
leaves on the erect secondary
stems conspicuously decurrent.
fls. purplish.

48

1942 Colombia

Micromeria

19190 scattered brush on slope

99

91 *Gentiana*

muddy pasture

92

low rocks sticking up in muddy
springy pasture

10500-10800 ft.

93 *Gaultheria*small patch of woods in
shallow ravine.

94

brushy pasture

95 *Vaccinium*small patch of woods in
shallow ravine96 *Hedysotis*open grazed hillside, abundant
throughout region at altitude
over 9000 ft.97 *Castilleja*

somewhat brushy hillside

98 *Cestrum*

somewhat brushy hillside

99

~~8~~ somewhat brushy slope,
around rocks.19200 ~~Polypodium~~ ^{Campyloneurum} Fee det. M. Meyer 1964
hanging from isolated tree

Norte de Santander

49

box-like,
dense, rounded brush 2 m. tall,
flowers white.
flowers pale purplishflowers white inside,
pinkish outside.

tree 5 m. tall, fls. white

shrub 1 m. tall, fls. heads
white, herbage very
resinous - aromatic when broken.shrub 1.5 m. tall, flowers
scarlet, waxy.
prostrate, forming loose
mats, leaves decussate,
flowers white or somewhat
purplish, especially outside.
calyx scarlet, slightly
edged with yellow, galea
red below, green above.small shrub 0.4 m. tall
fruits black, fleshy, fls.
dark purple outside, green within.mat-forming, petals
white, not cleft. styles 3

abigones glaucous-green

19201 *Hypericum*
somewhat brushy slope

79

Nov. 29 - Hill above Bogotá Water Works,
San Cristóbal, - just s. of Bogotá,
Cundinamarca
gently sloping 9000 ft.
small, paramo with brushy
ravines. *Espeletia grandiflora*
and *E. cymbosa* abundant

22.10.1
22.10.2
22.10.3
22.10.4
22.10.5

02 *Hedysarum*
common

03 side of ravine

04 rocky ledges among brush on
side of ravine

05 *Eupatorium*
common

06 brushy side of ravine

07 *Gaultheria*
rare

08 *Bartsia*
one small colony

09 *Castilleja*
scattered

Nov. 29. - Cundinamarca
51

shrub 1.4 m. tall (others
observed to form trees 3-4 m.
tall), flowers bright
yellow. leaves decussate.

shrub up to 1 m. tall, leaves
stiff, white beneath,
flowers white, lobes
purplish outside toward tip.
- shrub 2 m. tall, fruits
blackish.

imbricate bracts purple, sepals
and petals yellow, lips
whitish or pinkish with
a ~~red~~ maroon spot in
the center below.

depressed shrub, scapes
erect, fls. lavender.
shrub 2 m. tall, fls. yellow

depressed shrub, inflorescences
and fls. red.

plant purplish, esp. the inflorescences
- & calyx, corolla yellowish green.
bracts scarlet distally, calyx
scarlet, corolla green with
red edging toward tip.

19200 *Nertera granadensis* (L.f.) Druce
one small cushion in open place

4 11 *Gilia*
open slope, scattered bushes

4 12 *Gnaphalium*
large colony on eroded place

4 13 *Hypericum*
occasional and localized

5 14 *Vaccinium*
common

8 15 *Amazoa*
rare

2 16 *Vaccinium*
rare

5 17 *Paepalanthus*
common

4 18 *Lycopodium*
common

4 19 *Lycopodium*
common

4 20 *Hypericum*
scattered

Nov. 30 - Magdalena Valley,
Giradot to Neiva, Tolima and Huila.

Flat warm country with
thorn forest alternating with
pastures, apparently rather
dry except in low spots near
the river. Arborescent cereus esp.

flowers green

shrub 1.5 m. tall, flowers
whitish, leaves sticky
aromatic, slightly woody
and decumbent at base,
heads yellowish.
flowers yellow

shrub, m. tall, ^{petiolately} corolla
red, waxy, fruit immature

shrub 1.5 m. tall, flowers
white

dwarf shrub, flowers
purple.

cushionlike clumps, flowers
white, peduncles somewhat
flattened.

branchlets compressed,
spikes erect, cylindric.

plant trailing up to ~~1 m.~~
1 m. long. branches & spikes
erect.

erect, flowers yellow

~~Acacia~~ common, thorny legume
abundant. Croton abundant,
especially in overgrazed areas.
Some of dry low hills badly
over-grazed and eroded.
River very muddy.

Population rather sparse
in many places.

54 1942 Colombia

7 Dec. 2 - Neiva, bank of
Rio Magdalena, Huila

19221 *Gossypium* ~~in~~ ⁱⁿ garden

44 Dec. 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. 40 km.
s. of Neiva, Huila 2750 ft.
Brusly river bluff, with
seeps of water.

22 *Wigandia*
cut bank above road

23 *Oxyptilum cordatum* (Vahl) Schlecht.
as O. latifolium

24 *Aspidosperma cuspa* (HBK) S.F. Blake ex Pittier
det. Steve Smith, 1985

25

26

27

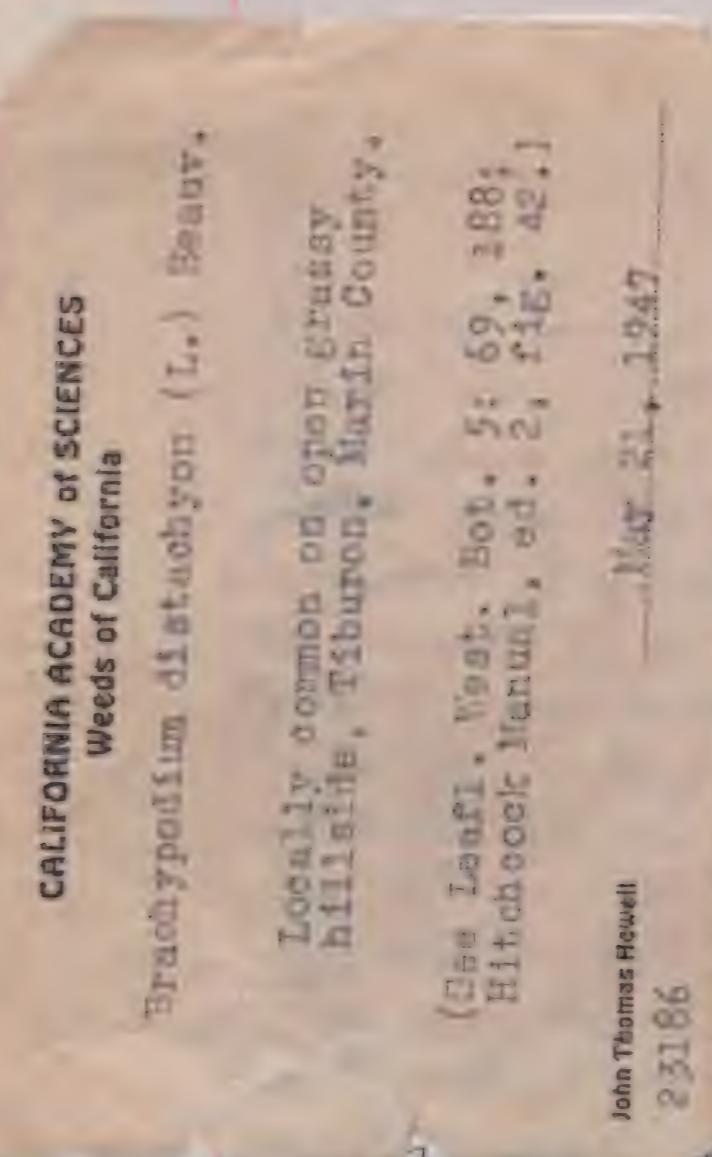
28 *Porophyllum ruderale*

29 *Tournefortia*

30

Huila 55

tree 5 m tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)



fl. with prickly
vers lavender
- lactiferous,
creamy yellow,
- white.
tall, leaves
red green,
seen, lobes yellow,
pls. purple-black.
fl. fls. lavender
ed with purple,
root white.
tall, stems
red prickles,
fls. purple-black.
malodorous herb up to 1 m.
tall, ~~fls.~~ involucres purple,
fls. yellowish, leaves
somewhat glaucous.
slender shrub 1 m. tall,
fls. ripe fruits red, fresh.
vine climbing on shrubs,
petals bright yellow.

7 Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
19221 *Gossypium* ~~zeylanicum~~
in garden

44 Dec 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. $4\frac{3}{4}$ km.
s. of Neiva, Huila 2750 ft.

Brushy river bluff, with
seeps of water.

22 *Wigandia*
cut bank

23 *Oxy*

24 *Aspidosperma*

25 *Boehmeria*

26 *Boehmeria*

27 *Boehmeria*

28 *Porophyllum*

29 *Tournefortia*

30 *Tulipa*

tree 5 m. tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)

shrub 3 m. tall, with prickly
hairs, flowers lavender.
twining vine, lactiferous,
~~fls.~~ cholla greenish yellow,
corona bifid, white.
shrub 3 m. tall, leaves
pale yellowish green,
corolla tube green, lobes yellow.
shrub 1.5 m., fls. purple-black.
herb 1 m. tall, fls. lavender,
throat dotted with purple,
lip with throat white.
shrub 3 m. tall, stems
with recurved prickles,
fls. purple-black.
malodorous herb up to 1 m.
tall, ~~fls.~~ involucro purple,
fls. yellowish, leaves
somewhat glaucous.
slender shrub, m. tall,
~~fls.~~ ripe fruit red, fresh.
vine climbing on shrubs,
petals bright yellow.

7 Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
19221 *Gossypium arboreum*
in garden

44 Dec. 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. $4\frac{3}{4}$ km.
s. of Neiva, Huila 2750 ft.

Brushy river bluff, with
seeps of water.

22 *Wigandia*
cut bank above road

23 *Oxypteron cordatum* (Vahl) Schlecht.
as O. affine

24 *Aspidosperma cuspa* (HBK) S.F. Blake ex Pittier
det. Steve Smith, 1945

25 *Dioscorea*

26 *Leptadenia*

27 *Leptadenia*

28 *Porphylloides*

29 *Tournefortia*

30 *Leptadenia*

tree 5 m. tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)

shrub 2 m. tall, with prickly
hairs, flowers lavender
twining vine, lactiferous,
~~fls~~ corolla greenish yellow,
corona bifid, white.

shrub 3 m. tall, leaves
pale yellowish green.

corolla tube green, lobes yellow.

shrub 1.5 m., fls. purple-black.

herb 1 m. tall, fls. lavender,
throat dotted with purple.

lip with throat white.

shrub 3 m. tall, stems
with recurved prickles.

fls. purple-black.

malodorous herb up to 1 m.
tall, ~~fls~~ involucres purple,

fls yellowish, leaves

somewhat glaucous.

slender shrub 1 m. tall,

~~fls~~ ripe fruits red, fresh.

vine climbing on shrubs,

petals bright yellow.

19231 *Helaginella*
on moist ground under bushes

32 *Citharexylum*

33 *Anemone*
wet ground under bushes

34 *Petraea*

43 *Algeciras (San Juanito)*, 10 km. s. of
Niva, Huila (7400 ft.) 1050 m.

35 *Chlorophora tinctoria*
cultivated in yard.

gently sloping pasture with
several small streams
and with scattered trees

36 *Cyperus*

37 *Lapindus*

38 *Cupatorium*
rocky stream bank

39 *Cupatorium*
rocky stream bank

prostrate, forming a
thin carpet on earth ledges.
shrub 2 m. tall, ripe fruits
scarlet.

shrub 2 m. tall, calyx bright
lavender-purple.

~~Tree~~ Tree 10 m. tall, sterile,
branches spiny, leaves
brittle, latex used for
an anesthetic when pulling teeth,
"dinde" (local)

heads white, plants in
small tufts

rounded spreading tree,
flowers white, fruits
yellowish or greenish.
pulp used for soap, seed
by children for marbles
or to make rosaries.
"Chambimbo" ac. Rodriguez
"Chambimbo" local.

herb 3-10 dm. tall, fls. white.

vine, very lactiferous
stems green, fls. white.

58

1942 Colombia

19240 *Paspalum*
41 *Cyperus*
42 *Cyperus*
43 *Cyperus*
44 *Cyperus*
sandy places
45 *Panicum*
the common grass in low pasture
46 bank of stream
47 bank of stream
48 *Piper*
49 *Verbena officinalis littoralis*
10 50 *Ageratum*
7 ^{labordei} _{Altamarias, in s.}
Dec. 5 - 1 side of valley of Rio
Niva, about 1 km. above Salado,
40 km. ^{SE} of Neiva Huila
thick forest on slopes.

19251 *Cinchona pubescens* Vahl
edge of forest 6600 ft
common in this patch of woods.
10-15 trees in sight at once.

47 *Palicourea*
dense forest

Huila

59

forming a dense turf, ^{ered.} scapiferous
small tufts.
erect
depressed tufts
"makay" acc. Rodriguez
up to 2 m. tall
shrub up to 2 m. tall,
fls. yellow.
shrub 2 m. tall, staminate
and pistillate flowers on
different branches, the
staminate lower. (Plant
of several stems, possibly
more than one plant involved).
shrub 4 m. tall, spikes
white, arcuate.
used as an antimalarial
locally "Verbena nigra".
"marrubia" or "verbena
de chivo" used for
stomach trouble.

anal. Ollis:
9.1% 2.
ce 1.2%
gu 5%
TC 1.2%
tree 10 m. or more tall, 2-3 dm. through
leaves reddish esp. midrib
and veins. Bark light pinkish
white, but oxidizing rapidly
to reddish.
shrub 2-3 m. tall, flowers
lavender purple.

19253 *Cinchona*
thick woods, steep slope 6700 ft
~ 54

55 *Cinchona*
in dense Chusquea brake in
ravine.

56 *Cinchona*
edge of opening filled with
Chusquea sp. common here,
said to have been planted
70 or 80 years ago.

57 *Cinchona officinalis*
thicket of Chusquea sp. on steep
slope.

58 *Phoradendron*
parasitic on # 19257

59 *Cinchona officinalis*
dense but rather decadent
woods. Many trees, especially
this species dying or dead

Dec. 5 - Rio Neiva, 6200 ft

Huila
strip of woods on bluff
above river

60 *Cinchona pubescens* Vahl

only tree seen, nearly dead,
only sprouts available.
shrub rather scrambling
in other shrubs 1.5 m. tall,
flowers bright red, forming
a globose mass. Plant with
scanty latex
seedling 1 m. tall.

near no. 19256 + 19287, the same
identical with them.

anal. Bellis:
g + c 1.9%
ci 0.2%
qui 1%
T.C. 2.1%
tree 10 m. tall, slender,
trunk base, 1.5 dm. thick near high
(bark sample) Bark whitish
but soon oxidizing to reddish,
very bitter.

anal. Bellis:
g + c 2%
ci 0.5%
qui 0.1%
T.C. 2.6%
same. leaves only at top,
leaves with only slight
cluster, rather stiff, veins
not prominent. (bark sample)
forming mass 1 m. in diam.
fruits yellow, stems compressed

small tree, almost dead,
bark brittle and very
coherent D wood. This and
19256 + # 19287 called "guinguna"
locally. Considered the best kind.
Used locally.

anal. Bellis:
not more
than mass
of *Cinchona*
alkaloids.

small tree 6 m. tall, 1 dm. thick,
leaves turning reddish,
much larger tree nearby
bark pinkish white

Dec. 5 - Headwaters of Rio Neiva,
bet. Cerro Neiva and Cerro del Diablo.
Huila 35 km. ESE of Neiva alt. 6700 ft.
19260a *Lycopodium claratum*
on cut above trail

Altagracias - old plantation
evidently the farm of *Coffeum*
trees are all rather small,
and half dead. The bark of
from the trunks. This is the
region, said to be the best
farm, broader leaved and more
partly dead. Only sprouts
patch of forest *C. pubescens*
trees are larger and in
quite feasible to harvest

Cinchona notes Dec. 5-6.

of what looks like *C. pitayensis*,
alis common in this region. The
the older ones seem diseased
these is rather hard to remove
so called "guina tuna" of this
bark. One or two trees of another
pubescent were seen, but
available. Lower down, in another
is very abundant & in
good condition. It would seem
both of these species here.

Vic. of Finca

Only the form of *Coffeum*
here, but only one small
all small, about 1 dm. thru
those in Altagracias, have
tops. Evidently the tree is
species of *Ladenbergia* are here,
sometimes, "calisaya". These are
It is likely that we did not
here, as the valley is com-
wooded mountains. If the
fairly high, some bark might

Mercedes

is mentioned above seen
ridge explored. The trees were
and 10 m. tall, or smaller. They, like
tall bare trunks and bushy
small and short lived. Two
also called "guina naranja", or, one
abundant and large trees.
see the best cinchona stands
pletely surrounded by densely
alkaloid content of the bark is
be produced here.

65 ✓ Dec. 6 - Headwaters of
Río Neiva, between Cerros del Diablo
+ Cerros de Neiva, Huila, near
boundary of ~~Caquetá~~ Meta
15 km. ESE of Neiva 7500-7800 ft.
Dense tangled forest, openings
filled with *Chusquea*.

19261 *Ladenbergia*
single tree left in clearing

" 62 *Nertera*
trail ~~cut~~ cut in clearing, ^{water with} on bark

1 63 *Lycopodium*
wet seepy grassy bank

1 64 *Pelliciera*
wet ravine along stream

1 65 *Licaria*
wet rocks in ravine along stream

1 66 *Miconia leucophora* Wurdack (type, lined 1921)
wet ravine

10 67 *Ladenbergia*
slope

1 68 *Ladenbergia macrocarpa*
slope

1 69 *Philodendron*

70 *Trichomanes*
very common on tree trunks

tree 10 m. tall, 2.5 dm. thick
flowers white, fragrant.
forming dense mat,
fruits clear translucent coral
red, darker distally.
erect.

shrub 2 m. tall, thyrses
yellow, corolla white,
plant purplish red, stem
fleshy, erect.

shrub 1.5 m. tall, fl. white

Anal. Bellis: tree 20 m. tall, 2.5 dm. thick,
TC n. more
than twice (bark sample)

Anal. Bellis: tree 15 m. tall, leaves with
reddish petioles, fruits
dry and old. (Bark sample)
spathe and spadix light
green, short stem, probably
becoming vine-like, with
aerial roots.

rhizome clinging tightly
to tree trunk, "pateraca"

19271 *Ladenbergia macrocarpa*
slope

72 *Cyperus*
chusquea-thicket

73 ~~Hedysarum~~
ridge

~~II~~ Finca Las Mercedes, ^{5 km. SSW of Neiva}
headwaters of Rio Balsillas,

Dec. 6 - Bet. Cerro del Diablo
& Cerro ~~de~~ Neiva, ^{Meta} ~~Copuata~~ near
border of Huila. 7700 ft.

Forest interspersed with
openings filled with Chusquea.

19274 *Cinchona*

Anal. Bellis:
not more than
twice of
Cinchona officinalis

tree 15 m. tall, sterile.
(Bark sample)

terrestrial (in decaying
vegetation) flowers greenish
white.

shrub 3 m. tall, very
fragrant, even when
not broken. ~~B~~ "Granizo
morada" locally. Much
sold in drug stores as
remedy for stomach aches
and fever. Fruit fleshy,
greenish, cone-like. (Leaf sample)

A few old stubs of *C. pubescens*
with sprouts still persist
along the trail above Las Mercedes
in cleared area.

Bellis:
g + c. 2.1%
c. 0.4%
gu. u
T.C. 2.5%

small slender tree ^{10 m. tall, dry thick}
bare trunk and brushy
top, leaves glossy above,
with red midrib. Bark
white inside, oxidizing
brown, bitter (Bark sample)

Anal. Bellis:
g + c. 1.3%
c. 0.6%
gu. u
T.C. 1.9%

slender tree 10 m. tall, ~~dry~~ thick,
leaves glossy above. flowers dark
purple. "guina tuná" said
to be the best in this region
(also ^o 19274) (Bark sample)

Dec. 7 - Finca Tama, in upper
valley of Rio Balsillas (part of old
Hacienda Balsillas), 7200 ft.

76 *Drymaria cordata*
in fences around garden and coral.

weak, supported on fence
fruits pedicels rigid, easily detached.

1 Dec. 7. - Valley of upper ^{Rio} Balaillas,
bet. Finca Tama and Finca Balaillas,
Caguata (in Meta)
7200 m.

Wooded ravine along river
Cinchona pubescens
only two trees seen here.

2 78 *Ficus*
solitary trees left after
clearing flat valley floor
for pasture, wet ground.

39 Dec. 7 - Finca Balaillas, hills
above ranch house, upper
Río Balaillas, 4 km s.e. of Neiva
Caguata (in Meta)
slopes and bottom of wet
steep densely wooded ravine

19279 *Saravina floccifera* Triana 7500 ft. ^{det. R. T. Schultes}
lower edge of forest

80 *Chusquea*

near bottom of ravine

81 *Centropogon*

bottom of ravine

82 *Gynandropsis*
bottom of ravine

83 *Palicourea*
slope, common

Anal. Bellis
B+C T
Ci 1.4%
Gu T
Te 1.4%

small tree 6-7 m. tall, older
leaves red, stipules strongly
recurved, flowers pink.
(Bark sample.) fragrant,
bracts on margins of lobes
white.

great trees 30m. tall, trunks
white, latex not
especially abundant.
figs red. "cauchos"

small tree 5 m. tall, flowers
white. "tulumoco" fruit eaten.
tough liana forming dense
tangles, only one seen in flower.
vine-like herb, several
m. long, fls. salmon color
spreading shrub several
m. long, branched, flowers
orange, fruit greenish white
shrub 3 m. tall, infl. purple,
corolla blue-purple.

19284 *Cinchona pubescens*
steep side of ravine

Anal. Bellis
8²⁵ 0.8%
Li 1.2%
Gni 0%
TC 2.0%

19285 *Macrorhynchia*
steep side of ravine

tree 10 m. tall, sterile, ~~stems~~
older leaves reddish, stipules
small, strongly recurved
(Bark sample)

23 Dec. 8 - mountain directly
across valley of Rio Balsillas
from Finca Abyssinum (about
1.5 km. below Finca Balsillas)
45 km. ESE of Neiva Caquetá Meta
7500-8000 ft.

Although ~~through~~ the people
say there are scattered "guins"
trees here, we saw absolutely
no *Cinchona* in a day's climbing.
Much Ladenbergia macrocarpa.

19286 *Peperomia* ^{mossy}
creeping on tree trunks. infloresc.

prostrate, stems filiform
- leaves fleshy, variegated
pendent

187 ~~A.~~ *Polyodium*
mossy tree trunk

Anal. Bellis
not noted
Gni traces
Ladenbergia
Stratfordia

188 *Ladenbergia macrocarpa*

tree 15 m. tall, 1.5 dm. thick,
fruit immature, stipules
calyptate (Bark sample)
stems fleshy, brownish

189 *Pilea*
dense shade, on ~~garden~~ sloping ground

19290

in small opening filled with Chusquea

1941

Palicourea

Finca Abyssinia

Dec. 8 - Valley of upper Rio Balsillas,
~~Balsillas~~ (1.5 km. below old Hacienda
Balsillas) 43 km. e.e. of Neiva

Meta Cagueta

Flat plain ^{wet} 7000 ft.
Formerly wooded
but now cleared, - except
for an occasional tree.

92 Cinchona pubescens Vahl

tree 10-12 m. tall, 1 dm. thick.
flowers white, young
fruits pinkish. leaves stiff,
but not especially thick
small tree or shrub 6 m. tall
inflorescence purple,
calyx green, corolla dull
flesh color, fruit green.A few scattered Cinchona
pubescens trees in the cleared
valley, and stump sprouts
on the low foothills which
have been recently cleared suggest
that formerly this species
may have been abundant at 7000'.

Anal. Bellis:

g+c 1.2%
ci 0.4%
gu n
TC 1.6%tree 6 m. tall (formerly taller,
but main stem cut off
2 m. above ground), 2 dm. thick
bark very scaly, leaves
reddish when old, fruit somewhat
immature and ^{immature} deliquescent
stipules strongly reflexed.

9

Dec. 9 - Finca Playon, just below Las
Mercedes, near head of Rio Balsillas

Meta Cagueta

7600'

Dense wet forest

93 Cinchona pubescens

94 Cinchona pubescens

Anal. Bellis:

g+c 1.4%
ci 0.2%
gu 0.1%
TC 1.7%
Anal. Bellis:
g+c n
ci 0.3%
gu n
TC 0.8%Quite a few trees of C. pubescens
here, a form with leaves
acute at base. Called locally
"cascabillo".small tree, some leaves red,
stipules reflexed, buds pink (Bukitap)
large tree 15 m. tall, 3 dm. thick, some
leaves red, stipules reflexed

Dec. 10 - Batán, on Río Neiva
10 km. below source, about 32
km. a.e. of Neiva. Huila alt. 670'
cut over slopes with brush,
mainly *Baccharis* sp.

19795 *Carduus*
~~dead wood~~

96 *Fuchsia*

2 97 *Galium (Rebunium) hypoleucum*

1 97a *stellaria*

98 *Selaginella*
abundant on cut banks
above trail.

Dec. 10 - Valley of Río Neiva
3 km. below Salado

Huila
Pasture with thickets along
small stream.

12 99 *Phytolacca*

19300 *Heliconia*
in tall grass along stream

01 *Salvia*

Pasture

Dec. 10 - Valley of Río Neiva.
2-3 km. above La Puente,
bet. Algeciras and Salado

Huila

03 *Hamelia*
Thickets near river

herb up to 1 m. tall,
fls. orange-red, anthers purple.
- somewhat scendent
shrub, fls. scarlet,
pendent.
vine, climbing through
bushes, fruits fleshy,
orange.
appressed to bank.

herb 1 m. tall, fls. whitish.
herb 1.5 m. tall, spike erect,
bracts red, fls. yellow.
erect herb 1 m. tall
fls. blue, herbage aromatic.
weak herb, fls. deep chrome
yellow or orange yellow.

shrub 1.5 m. tall (others 3 m.), fls.
vermillion, fruits infl. stems, petals red.

19304 *Jamia*

on steep slope above road, young plants abundant on nearby slopes.

Dec. 11 - Quebrada Perdig, affluent of Rio Neiva, s.e. of Algeciras (San Juanito) 42 km S. of Neiva

Huila

05 *Bidens*

woods along stream in deep gulch

06 *Polypodium*

rocky places above trail, abundant

07 *Polypodium*

rocky places above trail

08 *Cinchona pubescens* Vald

on steep slope in wooded ravine, not abundant but seedlings very common along trail. Most of it has evidently been cut.

09 *Centropogon* ~~spicifer~~

wooded ravine

10 *Haematoxylum*

wooded ravine, climbing in Cinchona tree.

11 *Drymaria*

disturbed ground below trail in deep wooded ravine, not shaded

trunk 6 dm. tall, leaves erect to spreading, leathery, glaucous, staminate spikes erect, buff, malodorous.

4500ft. Vine-like herb, hanging from small trees, flowers bright yellow.

6000ft. rhizome or roots used as a verminfuge.

6800ft. rhizome creeping, fronds leathery.

6450 ft. small tree; 3 m. tall, about 1 dm. thick, some leaves red, veins and petioles reddish, stipules erect, spreading somewhat before balling and on sucker shoots. (Bark sample) leaves dull above.

6600ft. herb 1 m. tall, lactiferous, flowers scarlet, anthers purple.

6150ft. herbaceous vine, extensively climbing, inflorescences pendent, green leaves glaucous beneath.

spreading herb, fls. white.

19312 *Cinchona* ^{well} ~~well~~ in ~~deep~~ wooded ravine, scattered trees but not abundant

$Q_a = 3.4$
 $Cd = 0.5$

9000
Anal. Bellis.
Q+C 2.9%
Li 0.2%
Qm 7%
TC 3.1%

Dec. 17 Neiva, Huila 472 m.

Walked around town with Holdridge, looking at street trees, weeds, etc. *Mangifera indica*, *Melicocca bijuga* (Marmocillo), *Ficus benjamina*, *Spathodea campanulata*, *Pithecellobium dulce*, *Erythrina glaucia*, *Casuarina* sp., *Chlorophora tinctoria*, *Cordia* sp. with rough leaves, ^{small} white fls. and translucent white fruits, *Glinnidia sepium*, *Delonix regia*, *Albizia* sp., *Samanea saman*, etc. occurs.

Cassia alata and *C. occidentalis* (?) are abundant as weeds. Noticed ~~as~~ a species of *Rauvolfia* with red fruits, herbaceous, growing wild. *Chrysobalanus ursao* has small obovate leaves. *Duranta repens*, *Plumeria rubra*, *Jatropha curcas*, *Jatropha* sp., *Brahmae rosea*, and many palms as ornamentals. Citrus common. Rice cultivated near the river outside town.

small tree 10 m. tall, leaves reddish, trunk 8 cm. thick
(Bark sample)

Here, as usual, the *Cinchona pubescens* is mostly cut, though some remains in ravines and probably in the patches of forest still remaining on the steeper slopes. Along the trail are sucker shoots and many small seedlings. At much higher altitudes *C. officinalis* occurs. At 3000' it is rather scarce where the trail goes ~~up~~ up the valley of the G. Peraz, but it must occur in some quantity elsewhere in the vicinity, judging from the number of people who are interested in collecting bark.

Guazuma ulmifolia is everywhere as a weedy tree.

1 Dec. 15 - Rio Cabrera, 2 km. below mouth of R. Amba.
3 km. below Colombia, Huila

3000 ft.

Area flat, recently flooded,
dominant plants *Jatropha* sp.,
Acacia farnesiana, *Cereus* sp.,
Opuntia sp., ~~Cactus~~ *Cactus* sp.,
rather heavily grazed.

19313

14 *Euphorbia*15 *Scutellaria*
low grassy place16 *Leopoldia*
low grassy place17 *Citharexylum*18 *Tragostis*19 *Aster* - common
common or grazed or disturbed
places20 *Solanum*
common21 *Evolvulus*
rare22 *Arenaria*

The ~~steep~~ road from Neiva
to here provides a grand
display of large cacti, several
Cereus and a couple of *Opuntias*.
It is a dry hot valley with
savannah and thorn
forest.

prostrate, forming a loose mat,
flowers yellow.

prostrate, glands pinkish
white, leaves glaucous beneath,
erect, flowers white outside,
violet within, lobes white,
herbage aromatic, odor rather
penetrating.

suffrutescent herb 1 m. tall,
flowers white.

small bushy spreading
tree, 5 m. tall, flowers greenish
yellow.

culms spreading
prostrate, rooting at nodes,
forming large loose mats,
heads prickly.

yellowish green bush up
to 1 m. tall, usually less,
fruit bright red, thorns
yellow, dark brown towards
tips.

erect.

almost prostrate.

19323 *Lida*
common

24 *Bocchavaris*

25 *grass*
common

26 *Tragus*
common on grazed or disturbed spots

27 *Evolvulus*
common

Dec. 15 - Colombia, on Rio ^{ambig} ~~Cabecita~~
just above confluence with R. Cebolla, Huila
3000 ft

Dry eroded river bluffs,
bare soil with small
Prosopis trees, mostly bare
soil, some cacti (one
Mammillaria, two *Cerei*, one
Lactus & 3 *Opuntias*.)

28 *Croton*
top edge of bluff

29 *Delilia billota* ^{det. J. B. B.}
ledges of gravel

30 *Psychotria*
near base of bluff. tree

31 *Leptania*
near base of bluff

32 *Acalypha*
talus at base of bluff

33 *Abutilon*
talus at base of cliff

prostrate, flowers yellow.

prostrate, leaves glaucous
beneath, root obviously thickened
and perennial.

culms spreading

culms spreading

ascending, flowers blue,
leaves gray-serraceous.

fls. yellow.

Vine twining over small
bushes, flowers blue
vine, climbing on bushes,
fls. white.

suffrutescent herb 7 dm.

tall. stigmas & styles white.

suffrutescent herb,
fls. orange.

44 19334 *Kallstroemia*
talus at base of bluff

45 35 *Malvacies*
top of bluff

46 36 ~~Leida~~ *Malvastrum spicatum* (L.) Gray
top of bluff

47 37 *Plumbago*
top of bluff

48 38 *Desmanthus*
top of bluff, rare

49 39 *Heliotropium*
top of bluff, common

50 40 ~~Leida~~ *Setaria*
top of bluff

51 41 *Teephwia*
top of bluff, common

52 42 ~~Leida~~ *Leidea*
top of bluff

53 43 *Tillandsia*
top of bluff

44 *Casearia*
base of bluff and on ledges

" Mud and gravel flats along
river

45 *Borreia*

46 abundant

47 *Hyptis*

prostrate, fls. purplish,
closed when collected.

erect, fls. orange-yellow.

spreading suffrutescent
herb, fls. white.

fls. yellow, plant spreading,
depressed.

spreading-ascending herb,
fls. white.

prostrate vine, flowers
light yellow, inflorescence
erect.

prostrate, fls. bright
violet.

erect suffrutescent herb
0.5 m. tall, fls. orange.

epiphytic on twigs of
Prosopis sp.

shrub up to 3 m. ~~long~~ long,
hanging somewhat from
bluff. Fls. white, fruit immat.,
fls. & fruit from different plants.

erect, fls. white.

erect, fls. red-purple

herb 1 m. long, ascending,
fls. white, herbage
strongly aromatic.

19348 *Polygonum punctatum* Ell. ^{det. 207.}
49
50 *Momordica charantia*
edge of mud, on bank of river
51 *Malpighia*
bank of river
52 bank of river
Dec. 16 ^{Fins El Playa} - l. side of valley of
Rio Ambica, ~~several~~ 1 km.
above confluence of Rio Blanco,
13 km SSW of Colombia Huila
with ~~fl. white~~
4100 ft.
Brushy hillside with
woods along streams.
53 *Maregravia*
in woods, ~~weak~~
54 *Cosmibuena*
edge of woods
55 *Helicocarpus popayanensis* ¹⁰⁰
edge of woods
56 *Cosmos*
along trail, open brushy slope
57 along trail, brushy slope
58 *Cuphea*
along trail, brushy slope
59 *Polypodium*
cut bank along trail
60 *Polypodium*
cut bank along trail.

fls. whitish. plant erect.
erect, fls. purplish.
vine, fls. yellow, fruit
orange, splitting into 3
parts, seeds red.
small shrub, 0.5 m. tall
fls. pink, fruit red.
fls. whitish.
weak shrub, leaning
on other shrubs, 5 m. tall.
anal. Bellis: not more than
traces of cinnabarinous
anthocyanins.
large spreading tree 8 m. tall.
fruits purple, conspicuous
rays pink, mature
achenes radiating at all angles.
fls. white.
shrub up to 1 m. tall. fls.
with pink petals.

1930 1 *Browallia*
grassy place along trail
edge of forest.

62 *Myrsinaceae*
forest

63 *Borreia*
in woods, along stream

64 *Elephantopus*
in woods along stream

65 *Asplenium*
rocks and earth along stream

66 *Blechnum*
rocky bank of stream

67 *Anemone*
rocky bank of stream

68 *Blechnum*
rocky bank of stream

69 *Blechnum*
rocky bank of stream

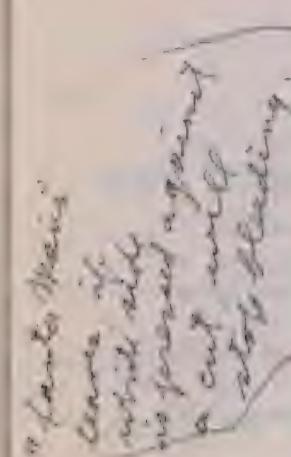
70 *Borreia*
edge of stream, rocky bank

71 *Cosmibuena*
wooded ravine

Dec. 17 - Rio Ambica near Guadalupe
Honduras, Huila.
4100 ft.

Wooded ravine

72 *Palicourea*
73 *Terminalia* ?
isolated tree on brushy slope



fls. bright blue with
yellow eye.

erect shrub with single
stem, 3 m. tall, leaves
white beneath, inflorescence
very large, compound,
involucres purple, fls. red.

spreading tree, 7 m tall,
fruits green, flattened.
fls. white

fls. very pale lavender,
nearly white.

fronds quite diverse.

fls. white

tree 15 dm. tall, 2 dm. through,
fls. white, fruit immature

shrub, fls. & infl. yellow.

tree 6 m. tall, fls. white.

193741 *Rondellia*
woods along trail

✓ 75 *Ladenbergia*
abundant in woods in ravine
and Bellis not mentioned
as Cinchona alkaloids

✓ 76 *Tillandsia usneoides*
hanging in great masses from
Ladenbergia trees

✓ Dec. 17 - Ris Ambica near
Quebrada la Cueva, 16 km SE of
Huila,
4200 ft.
Wooded ravine and slope

✓ 77 *Cinchona pubescens*
edge of woods

anal. Bellis:
9.7% Tn
ci 0.4%
qui Tn
TC 0.4% *

✓ 78 *Corecypselia*
along trail, edge of woods

✓ 79 *Isertia*
edge of woods.

✓ 80 *Justicia*
along trail

✓ 81 *Liparima*

✓ 82 *Calycophyllum* *Salvador*
dense woods

shrub 1-2 m. tall. flowers
pale pink, deep pink outside.
Tree 20 m. tall, 3 dm. thick,
leaves glossy, panicles
drooping. "Guino cascarillo" very
silvery gray

(bark sample)

tree 8 m. tall. fls. pink, fruits
immature, leaves rosulate
beneath, petioles red, stipule
erect, later spreading.
(bark sample)

trailing herb, rooting at
nodes, flowers lavender,
fruit bright blue, fleshy.
Tree 10 m. tall, 3 dm. thick,
leaves white beneath,
flowers white fragrant.
flowers lavender blue,
campanulate.

shrub, fruits red, fleshy,
pyriform, smell like lemon grass.
tree 8 m. tall, expanded calyx
lobe greenish white, corolla white.

✓ Dec. 17 - Rio Ambica, near Quebrada San Pedro

Huila

Dense rain forest

1400 m.

19383

abundant along trail

Dec. 17 - Rio Ambica, near confluence with Quebrada La Trinidad,
23 km. ESE of Colombia

Huila

1380-1400 m.

Dense rain forest.

Jossea umbellifera Kunt.

fairly common locally

1400 m.

common locally along trail

1400 m.

Passiflora

1400 m.

Cephaelis axillaris

1400 m.

Criocaulon

1250 m.

between rocks with water trickling
between them, near stream*Miconia*

1250 m.

near stream

Dec. 17 - Rio Ambica near source,
just below (El Rocio) Paseo de la Cima.
24 km. ESE Colombia

Huila

6200 ft.

Wet ^{moist} rocks in trail*Nertera granadensis* (L.f.) Bruce

Shrub 1.5 m. tall, flowers
yellow, fruit dark red, fleshy.

spreading tree 6-7 m tall,
flo. white, brittle.

weak erect shrub, flo.
orange, fruit immature.
shrub 2 m. tall, flowers
white.

green shrub 1 m. tall, fls.
white, fruit blue.

shrub 2 m. tall, fls. purple,
white.

prostrate, fruits red.
leaves darker green than usual

✓ Dec. 13 - Bueravista, a small abandoned clearing on the trail from Colombia to Uribe, in drainage of Rio Tigre

Meta

4500 ft.

little wet forest around edges of clearing.

19391

Cephaelis
edge of clearing, thicket

7 92 Psychotria

thicket at edge of clearing

10 93 Ladenbergia

edge of clearing, common

94 Palicourea

shallow ravine

95

woods along trail

96

Dec. 13 - Trail below Bueravista,
valley of Rio Tigre, 30 km. s.e. by e.
of Colombia.

Meta

3500-2800 ft.

96

along trail

97

Cephaelis
very common in undergrowth in woods

3500 ft.

3400 ft.

98 Passiflora

climbing among shrubs

Cladonia
of tree
about 10
Met (200)
algae (5)
fungi (50)

scant herb 1.5 m. tall.
fl. flowers yellowish
- bright blue, fleshy,

2. tall, fls. white.
juv when ad. pale easily
others much
var white.

shrub 2 m. tall,
when young purple,
green, fruit
le when ripe
ing in small
tree. flowers white.

ered herb 1 m. tall, fls. white

shrub 1-3 m. tall, stem
green, fls. white, fruit blue.
involucres white.

Dec. 18 - Guenavista, a small abandoned clearing on the hill - Colombia to Uribe, in

1939
" 91
edge of clearing
Cephaelis
edge of cle

92 Psychotria
thicket at
93 Ladenbergia
edge of ct
94 Palicourea
shallow

95
woods at

96
Dec. 18 - Trail below Guenavista,
valley of Rio Tique, 30 km. s.e. by e.
of Colombia,
Meta

3500-2800 ft.

96
along trail

97 Cephaelis b. bracts
very common in undergrowth in wood.

98 Passiflora
climbing among shrubs

erect suffrutescent herb 1.5 m. tall,
bracts scarlet, flowers yellowish
white, fruit bright blue, fleshy,
pyriform.

shrub 2.5 m. tall, fls. white.
bark exudes yellow juice when cut, pale easily
anat. Bellis
not methanolic
of indole
alkaloids.
tree 3 m. tall, otherwise much
larger, flowers white.
sprawling shrub 2 m. tall,
inflorescence, when young, purple,
when mature green, fruit
purple-black when ripe.
vine climbing in small
tree, flowers white.

3500 ft. erect herb 1 m. tall, fls. white
shrub 1-3 m. tall, stem
green, fls. white, fruit bluish.
involucres white.

✓ Dec. 13 - Buenavista, a small abandoned clearing on the trail from Colombia to Uribe, in drainage of Rio Tigre

Meta

4500 ft.

little wet forest around edges
of clearing.

1939

Cephaelis
edge of clearing, thicket

92 Psychotria

thicket at edge of clearing

93 Ladenbergia

edge of clearing, common

94 Palicourea

shallow ravine

95

woods along trail

96

✓ Dec. 13 - Trail below Buenavista,
valley of Rio Tigre, 30 km. s.e. by e.
of Colombia.

Meta

3500-2800 ft.

96

along trail

97

Cephaelis
very common in undergrowth in wood.

98 Passiflora

climbing among shrubs

erect suffrutescent herb 1.5 m. tall,
bracts scarlet, flowers yellowish
white, fruit bright blue, fleshy,
pyriform.

shrub 2.5 m. tall, fls. white.
bark exudes yellow juice when cut, pale easily

anal. Bellii:
not mentioned
of cinchona
alkaloids.

tree 8 m. tall, others much
larger, flowers white.

sprawling shrub 2 m. tall,
inflorescence, when young, purple,
when mature green, fruits
purple-black when ripe.
vine climbing in small
tree, flowers white.

3500 ft.

erect herb 1 m. tall, fls. white

3500 ft.

shrub 1-3 m. tall, stem
green, fls. white, fruit blue.
involucres white.

19399 *Jussiaea*
wet place, edge of clearing
near river

19400 *Nephrolepis*
on tree in wet forest, common

01 *Ixora*
along trail near river, common
on bluffs ~~and 2220 ft.~~

02 *Hippotion albifrons*
along trail in woods

03 *bluff over river*

04 *Trichomanes*
vertical moist earth wall on bluff

05 *abundant on bluff over river*
Pteris altissima Poir. det. D.B. Bellinger 1969
19405

06 *on vertical moist earth wall*

07 *bluff over river*

08 *Cephhaelis*
bluff over river

09 *Condaminea cymbosa*
bluff over river

Dec. 18 - Ridge bet. Rio Tigre and
Rio Papamena, trail from Colombia
to Univ. Papamena side

10 *earth bank, wet woods*

11 *Ladenbergia*
abundant on slope, broken woods

3000 ft.

3200 ft.
2800 ft.

3000 ft.

2800 ft.

2800 ft.

2900 ft.

3500 ft.

herb 2 m. long, supported on
other plants, flowers small,
less than 1 cm. across, yellow.

shrub up to 2 m. tall,
fls. all caulinic below
leaves, coral red; fls. with
lobes yellow, shading to red
on tube; fruit white, fleshy.
shrub 2 m. tall.

rhizome erect, with
several fronds, all sterile.

herb 1 m. tall, bare stem
up to main node.
erect herb 1 m. tall, involucres
white, fruit translucent
- pale green.

tree 20 m. tall, corolla purple
outside, green within

flowers red - peels easily.
dark exuding yellow juice when cut,
no more than twice 1 cm. tall, panicles somewhat
wavy at tips, drooping. (Bark sample)

casa Papamene, on

Dec. 18 - Rio Papamene, on trail
to Uribe,

Meta

2500 ft.

19412

growing downward on mossy tree
trunk beside riverDec. 19. Chambuscado, ^{7 km. s.s.e. La Lagartijas} or plateau between
Río Papamene and Río Duda.

Meta

3500 ft.

Clearing on hilltop

13 Coccocypselum

14

15

16

edge of clearing

17 Jussiaea

18

19 Rotala Scoparia dulcis

20 Psychotria

Las Lagartijas.

Dec. 19. - Plateau between Río ~~and~~
Papamene and Río Duda, east of
Chambuscado, 5-6 km. w. s. w. of Uribe

Meta

along trail in dense forest

21 Psychotria

abundant

22 Cephaelis involucrata
abundant

flat to trunk

decumbent herb, fls. lavender,
fruits blue, fleshy, pyriform.
flowers yellow.
flowers blue-lavender.
erect shrub, 3 m. tall, virgate.
flowers white.
herb 1 m. long, fls. yellow, leaf
blan 1 cm. across.
decumbent herb, flowers bright
rose, tube deeper colored.
erect herb, fls. purplish, white
slender

slender erect shrub 3 m. tall,
fruits purple.
shrub with green stems,
up to 2.5 m tall, fls. white, involucres
white.

100 1942 Colombia

19422 *Cephaelis*
common

Dec 19 - Uribe.

Meta

2500 ft.

Clearings around edges of
village.

23 edge of ravine

24 *Gouania*
edge of ravine25 ~~edge~~
grassy place
26 *Palicourea*
edge of ravine27 ~~edge~~
grassy place28 *Solanum*
thicket29 *Phytolacca*
thicket30 *Jussiaea*
grassy place31 *Dichromena*
grassy place32 *Bidens*
fencerow33 *Mitchella*
fencerow34 *Cuphea*
grassy place

Meta

101

herb up to 1 m. tall, bracts
scarlet, flowers pale yellow.vine climbing in bushes,
flowers rose color, anthers
purple. later. said to be a but ~~or~~
large vine climbing over
trees, fruiting copiously,
crest, disk greenish white.shrub $\frac{2.5}{2}$ m. tall, thyme orange,
corolla pale yellow tipped
with deep orange red.
flowers whitepuff-crecent, semi-scendent
herb, flowers pale lavender.
herb up to 1 m. tall, radicles magenta,
fls pink, fruit immat. "guava" locally

small tufts, bracts white

vine, hanging from tree,
fls. yellow. stem ^{with} slightly red.
semi-scendent shrub,prostrate with erect branches.
fls pink

19435 *Borreria*
grassy place

36 *Borreria*
grassy place

37 *Borreria*
grassy place

38 *Borreria*
grassy place

39 *Tabernaemontana coronaria*
cultivated

Dec. 20 - Uribe

ravine with stream. Meta
2500 ft.

40 *Fuscia*
side of ravine

41 *Blechnum*
vertical earth walls of ravine

42 *Peltiphyllum* ¹⁹⁴² *Micromeria clavigera* ¹⁹⁵¹
on rocks in running water ¹⁹⁵¹
~~*Leptogynella*~~

43 *Leptogynella*
on moist vertical earth, sides of ravine

44 *Blechnum*
on moist or wet vertical earth sides
of ravine

moist woods along stream

45 *Rub*
dense woods

fls. white

fls. white

fls. white

fls. white

shrub, flowers white, odorless.
leaves dark green.

"doncello"

shrub up to 4 m. long, unflowered
flattened pink, fls. pink, white
distally, fruit immovable

holdfast spongy, closely branched,
forming network on rocks, leaves
finely branched, peduncles soft,
thick and fleshy in bud, small,
in flower, wiry in fruit.
flat, prostrate.

larger plants up away
from water, smaller near
water's edge.

erect slender shrub with long
leafy lateral branches, upright,
fls. white, fruit bluish green.

19446 *Remijia pedunculata*

dense woods, forming a "manchis" or patch

47 *Remijia pedunculata*

"manchis" or other small patch, in dense woods, said to be abundant in this vicinity. Bark used by inhabitants.

clearing on slope

48

49

50 *Jacaranda*

51

52

Vismia
common

53

wooded hill, moist woods
tangled with lianas and Chuecas

54

Dunalia

55

Adiantum

56

forest floor, common

Remijia pedunculata
scattered trees in dense woods,
not reaching canopy.

slender tree 10 m. tall, leaves dull dark green, fruit mature.

"guina cuprea" or "guina"

slender tree 15 m. tall, fruits almost mature, a few mature.

"guina cuprea" or "guina".

bush 1 m. tall, fruit pale green.

bush 15 m. tall, flowers yellow.

slender shrub 3 m. tall, flowers on bare shoot, purple,
buds much deeper purple,
erect, fls. whiteshrub 2 m. tall (others seen
are trees), flowers pale copper
colored, ~~bark~~ bark exuding
~~red~~ vermillion latex when
broken. "punta de lince" "lacra"
fls. yellow.erect shrub 3 m. tall, enlarge-
ments be. below nodes contain
small ants.

Anal. Bells:

g+c 1.4%

ci 0.4%

qui 0.4%

TC 2.2%

small tree, 10 m. tall, ~~1~~ 1 dm.
thick, bark thin, bitter, red-brown,
outer layer ~~comes~~ comes off easily as
a thin paper-like layer, fruits
immature. (Bark sample)

19457 *Cephaelis*
in forest floor, rare

19458 *Myrsinaceae*
climbing to canopy of forest

19459 *Polypodium*
on mossy tree trunk

19460 *Vittaria*
on mossy tree trunk

19461 *Ladenbergia magnifolia*

bracts and fruits bright purple.
large leaves, stem flat,
fronds leathery

anal. Bellis
not more
than trace
of cinchona
alkaloids

tree 25 m. tall, 3 dm. thick,
bark exuding yellow juice
when cut, ~~odor~~ oxidizing
reddish. (bark sample)
"cascavilla"

Dec 21 - Rio Duda, just above
Muisne

2500 ft.

19462 *Malvaceae*
yard of abandoned house
in clearing

19463 *Malvaceae*
yard of abandoned house in old
clearing

19464 *Decinaria*
along trail in moist woods

19465 *Hamelia*
along trail in moist woods

19466 *Apismenae hastellus*
along trail on rocks on shaded
side of ~~gated~~ deep ravine

19467 *Adiantum*
side of trail on rocks in deep ravine

herb, n. tall, fls. white
"malva"

Aji indicus
herb 1.5 m tall, flower yellow,
fruit red when ripe
"plumaria" "safon"

large leaves hanging
from trees. fls. whitish, fruit white,
seeded "benesemque" for seeds

shrub 4 m tall, flowers
orange-red, fruit immature
culms ascending

west

108

1942 - Colombia

19468

wet rocks above river

709

Selaginella
clothing the surface of wet
rocks above river

710

Adiantum
wet crevices under overhanging rocks

711

Selaginella
on wet rocks above river

712

Adiantum
on wet rocks above river

713

Selaginella
on wet rocks above river

714

Bixa
wooded slope along trail above
anemia climate Mickel det. J.T. Mickel 1966

715

Cine
vertical earth bank, densely
clothing the bank

716

Rubia
along trail in moist forest

717

along trail in moist forest

718

along trail in small clearing
in moist forest

719

along trail in small clearing
in moist woods, common

720

edge of woods, climbing in bushes

721

edge of clearing in moist woods

Meta

109

"pana silvestris"

base decumbent, stem erect,
flowers horizontal, corolla brilliant
scarlet outside, lobes green
speckled with black within
pale green, growing downward
on vertical rock surface.stipe erect, fronds deflexed
to prevent flat surface to light
stipes erect, blades reflexed,
turned to light.shrub 3 m tall, fruit green,
spines soft, leave bronzed
beneath "achote"subfrutescent herb 7 dm. tall,
inflorescence purple, fruit immature,
herb 7 dm. tall, fls. whiteherb 1.5 m. tall, fls. white,
leaves slightly aromatic when brokenerect subfrutescent herb
1.4 - 2 m. tall, flower white.woody vine, flowers yellow
spreading tree 7 m. tall,
flowers white

19482 *Vernonia*
edge of clearing in moist woods.

83 *Mikania*
edge of clearing in moist woods

84 *Vernonia*
edge of clearing in moist woods

85 *Abutilon*
clearing in moist woods

86 *Crassus*
edge of clearing in moist woods

87 *Jussiaea*
clearing in moist woods

88 *Modiolia caroliniana*
clearing in moist woods

89 *Hyptis*
clearing in moist woods

90 *Borreria*
clearing in moist woods

91 *Dymasia cordata*
clearing in moist woods

92 *Calopogon*
rocky side of shaded ravine

93 *Psychotria*
moist wood

Dec. 22 Las Llagartijos
Plateau between the
Rio Duda and Rio Cauca,
on trail from Colombia to Uribe,
east of Chancayacado, 5-6
km. n.w. of Uribe Meta
dense moist forest, along
cleared trail

semiecadent shrub
3 m. tall, fls. purple

- vine climbing in trees,
flowers white, almost odorless.

- vine climbing in trees, flowers
white

- woody herb 1.5 m. tall, fls.
white

- vine climbing in trees,
fls. white, corolla flat-tipped, but pink

- spreading herb fls. yellow,
very small, 5 mm across.

- erect suffrutescent herb
1 m. tall, fls. pink
"botonilla" fls. white

"lescares" diffuse herb, fls. white

"orga de raton" pedicels sticky
when in fruit

- herb 7 dm. tall, bracts bronze-
purple, corolla white

- green stemmed slender shrub,
fruits red.

✓ 19494 *Cephaelis*

✓ 95 *Psychotria*

✓ 96 *Cephaelis*

✓ 97 *Randia* (*Dunoria*)

✓ 98 *Psychotria*

✓ 99

in thin places in forest

✓ 19500 *Psychotria*

✓ 101 *Psychotria*

la lagartija.

Dec. 22 - Plateau between
Río Duda and Río Papamayo, on trail
from Colombia to Uribe, west
of Chambucado, 8-9 km. n.e. of
Uribe

dense moist woods

✓ 02 *Psychotria*

✓ 03 *Jussia umbellifera*

✓ 04 *Chusquea*

✓ 05 *Remijia pedunculata*

3500 ft. shrub 2^m. tall, bracts & buds
white, stems green.

✓ 98 - shrub 1 m. tall, buds white.

✓ 99 ft. shrub 1 m. tall, rather stiff,
stems green, bracts purple,
fruits very juicy, flesh

translucent, pale lavender.
✓ 100 ft. slender tree 4 m. tall, 3 cm. thick,
fruits green.

✓ 101 ft. shrub 2 m. tall, fruit immature
forming tangles several
meters deep.

✓ 102 ft. vine climbing in shrubs,
fls. white.

✓ 103 ft. shrub 1.5 m. tall, fl. white,
old inflorescences purple

✓ 01 shrub 2 m. tall, fl. white

✓ 02 tree 5 m. tall, fruit immature

✓ 03 liana forming dense tangles,

~~Scandosetaria~~ culms hanging
from tree, have branches
reflexed upward, all plants
in region in flower.

✓ 04 small tree, fruit immature

: den. s. of Rio Papamene,

* sanda, - small ^{open} rock
ridge, decomposing into
white sand, mossy, surrounded
by forest 3000 ft

19500

L 11 07 May 2.

1 08 *Panicum andreasenii* Mey. ^{W. T. Tidmarsh}5 09 *Trichomanes*

in moist rock crevices

10 few

in tufts of moss on rocks

11 *Eriocaulon*12 *Panicum*
abundant

Dec 12

East side of valley of Rio
Papamene, on Colombia - Uribe
trail

Meta

3000 ft

13 wet woods
Liparima
on slope14 ~~abundant~~
abundant on slopeweak suffrutescent
herb, fls. bright red -
shrub 2 m. tall, others
in forest nearby forming
small trees, stamens white
erect, stiff.
fronds erect{ forming loose clumps,
heads whitish
short culms erect, long
ones prostrate, rooting
at some nodes."chucha" shrub 3 m. tall,
fruit pyriform, red, smelling
strongly of lemongrass oil.
hair on stems red.
shrub 2 m. tall, fruit blue

Dec 23 - Valley of Rio Papamene,
Colombia - Uribe trail.

Flat, wet bottom-lands
with dense jungle 2500 ft.

19615

Jussiaea
opening

19616

Psychotria

19617

Psychotria

19618

Psychotria

19619

Malachra
weedy clearing

Dec. 23 - ridge δ east
Papamene valley, east slope
of ridge bet. ~~Rio~~ Rio Papamene
and Rio Tigré, ~~near~~ Colombia -
Uribe trail.

Wet forest

Meta

200 - 300 ft.

on trunk of partly fallen tree

19620

Cephaelis

Canna

herbaceous vine, corolla yellowish
green, fruit immature
erect herb, ~~2~~ m. tall,
corolla yellow
shrub, fruit blue.
shrub 1 m. tall, fruit white,
flowers white -
climbing in bushes, ~~up~~ fruit
shrub 2 m. tall, fruit immature
herb, m. tall, fls. bright
yellow "malva" see Rodriguez

2400 ft. leaves ~~leath~~ coriaceous, flowers
yellow-green
2800 ft. - shrub 1 m. tall, fruit orange-red.
3500 ft. - shrub 1 m. tall, fruits blue
3500 ft. 1.5 m. tall, flowers ~~white~~
~~yellow~~ ~~orange~~ cream-white,
arranged spirally, ovary
dull white, very fleshy and
irrigose, 3 lobed, each lobe
deeply grooved vertically, separate
petals, stamens white, bracts green.

19526

2 27 *Rosellinia*

3 28 Dec. 23 -, affluent of Rio Tigre
 below Cartagena, Colombia - Uribe | 2800 ft
 trail, 30 km. N. of Colombia Meta

Winded Bluff;

29 *Lippia*1 29 *Remijia pedunculata*

40 Dec. 23 - Cartagena, Colombia - Uribe
 trail, on Rio Tigre, 30 km. N. of Colombia
 Meta

Cleared ~~to~~ wet bottom-land, 2000 ft
 somewhat grown up with bushes.30 *Liabum*

common

31 *Diodia ocimifolia* (Willd.) Brem.*Manettia*

climbing, twining around bushes.

32 33

Growing up through grass and weeds

34 *Lippia*35 *Vernonia*36 *Cephaelis*

small tree, wood soft, inflorescences
 in fruit long and pendent,
 fruit flesh-color, fleshy
 shrub somewhat scandent,
 2 m. tall.

erect subfrutescent herb,
 1.5 m. tall.

sterile shoot, large sterile
 tree nearby

erect or reclining herb, ~~2-3~~
 1-1.5 m. tall, fls. bright yellow.

fls. white

vine, flowers bright red with
 yellow hair in center.

fls. yellow

shrub 1.5 m. tall, strongly
 scented of lemongrass oil.

herb 2 m. tall, fls. lavender

shrub 2 m. tall, fls. campanulate,
 white but bluish on purple
 on outside of corolla lobes,
 bracts white. stems green.

19537

Dec. 23 - Buenvista, 50 m. of
Río Tique on Colombia-Urib Trail,
20 km. e.e. of Colombia Meta

38

along trail in wet forest, common
Blechnum
in wet woods

39

Dec. 24 - Colombia - Uribe Trail, between
Buenvista and La Roca's pass,
25 km. e.e. of Colombia Meta

40

trail on steep wooded slope

41

cleared trail in wet forest or more or
less level ground, white sand

42

cleared trail in wet forest, white sand, more or less level

43

Panicum

cleared trail in wet forest, more or less level, white sand

44

Nertera granadensis (L.f.) Drue

cleared trail in wet forest, white sand, more or less level

45

Jussiaea ludwigia leptocarpa (Willd.) Hartman
edge of cleared trail in wet forest, white sand, more or less level

46

wet forest, level ground

47

Coccocypselum

cleared trail in level wet forest

48

Blechnum

dense wet forest

culms ascending

3700 ft.

4500 ft.

5000 ft.

5500 ft.

leaves dark green, flowers
white, fruit immature

rhizome short, erect, ~~pubescent~~
fertile fronds erect, sterile
somewhat spreading.

herb 0.7 m. tall, fls. orange-red,
little later.

small tree 5 m. tall, flowers
white, fruit immature.

prostrate, leaves dark green, fruit
translucent coral red.

herbaceous, vine-like, climbing
4 m. in a tree, fls. yellow.
shrub

fls. bright purple

climbing, rhizome 4 m. long, clinging
to tree by many fibrous roots, fronds
in upper half

19549 *Psychotria*
dense wet forest

4 50 *Glechnum*
dense wet forest

3 51 *Glechnum*
dense wet forest

— same loc. just below La Rucio

11 52 *Psychotria*
dense wet forest, steep slope, trail

53 *Hoffmannia*
dense wet forest, steep slope, trail

11 55 *Burmeistera*
trail in dense wet forest, steep slope

✓ Dec. 21 - Colombia - Uribe trail,
headwaters of Rio Ambica, just below
La Rucio (Pass) or Paso de las Cruces

Huila

✓ 56 *Psychotria*
dense wet forest

11 57 *Palicourea*
dense wet forest

11 58 *Viola*
mossy rocks in trail in dense, wet woods

5500 ft. shrub 2 m. tall, fls. white.
rhizome very short, prostrate
on ground, fronds climbing,
up to 10 m. long, lower 2-3 m.
naked, the rest with opposite
or subopposite pinnae about
15 cm. apart. frond twining
in tree, this plant sterile,
so far as I could see.

same as # 5519550, but from
hanging portion of a fertile
frond of another plant.

6000 ft. erect herb, ~~fls.~~ 1-2 m. tall,
unbranched or almost so.
— flowers and mature fruit white.

6000 ft. erect herb 2 m. tall, fls. yellowish
— fruit immature

6500 ft. herb up to 1 m. tall, fls. green,
fruit bright purple when
ripe.

6500 ft. shrub 1.5 m. tall, fls. pink
— fls. infl. purple, lvs. paler beneath

6500 ft. shrub 2 m. tall infl. reddish,
fls. lemon - yellow.

6000 ft. fls. pale lavender, marked with
purple.

✓ Dec. 24 - Upper Rio Ambica, bet. La
Rueda and confluence with the
Quebrada Trinidad

Huila

✓ 19559 *Colpopterum*
wet forest

✓ 60 among rocks on trail in wet forest

✓ 61 - 61 trail in wet forest

✓ 62 - 62 wet forest

✓ Dec. 24 - Upper Rio Ambica, at confluence
with Quebrada Trinidad.

Huila

✓ 63 *Trichomanes*
on ^{dry} rock beside river

✓ 64 in trail beside river, mud

✓ 65 *Viola*
in shade of log, on rock in river

✓ 66 *Polyodium*
base of dry rock near river

✓ 67 rocks near river

✓ Dec. 24 - Rio Ambica, near confluence
of Quebrada San Pedro

Huila

✓ 68 *Chusquea*
dense moist forest

5800 ft pendent from tree
fls. white

5000 ft.
5000 ft. herb 0.5 m. tall, fls. deep
scarlet, anthers purpleish
pendent from mossy tree-trunk

fronds stiff, reflexed.
prostrate, stems fleshy,
fls. purplish
prostrate, clinging to rock,
fls. lavender, purplish near center.
small tree, 5 m. tall (others
larger) inflorescences pendent,
with white-pinkish bracts.

from liana forming dense
tangles, pendent ~~long~~ culms
with reflexed branches,
flowering all thru region at this alt.

Dec. 25 - Antillas, e. side of Rio Blanco,

Moist forest on slope
Cinchona officinalis L
 dense forest, mostly Gueraea

Huila

5500 ft.

$$\begin{array}{c} 0.05 \\ 0.05 \\ 0.05 \end{array}$$

$$\begin{array}{c} 0.05 \\ 0.05 \\ 0.05 \end{array}$$

Anal. Bellis:
 Q+C 2.8%
 C 0.3%
 Q 0.1%
 TC 3.1%

Bark
 1.5 mm thick
 1.5 mm thick
 1.5 mm thick
 1.5 mm thick

70 *Cinchona officinalis*
 dense forest mostly Gueraea

(Q+C 10, leaf-bl. 6.0%)

$$\begin{array}{c} 0.05 \\ 0.05 \\ 0.05 \end{array}$$

 anal. Bellis:
 Q+C 2.0%
 C 0.3%
 Q 0.1%
 TC 5.1%

Anal. Bellis:
 Q+C 2.0%
 C 0.5%
 Q 0.1%
 TC 3.1%

$$\begin{array}{c} 0.05 \\ 0.05 \\ 0.05 \end{array}$$

71 *Cinchona officinalis*
 dense forest

72 *Croton*

73 *Borreria*

cleared slope near edge of forest,
 in deep grass

74 *Gymnosiphon*

in humus in dense forest

75 *Guettarda*
 cleared slope

only one guinea here, rather common in part of forest we visited,
 partly said to be old *Platelia*, but this not distinguishable from other.

About 20 trees per hectare on h. July

Bernal's holding said to be same in all
 forests around upper Rio Blanco.

small tree 3 m. tall, 5 cm. thick,
 leaves dark green, petioles red,
 flowers purple. (dark sample)
 hair on corolla lobes white 1-1 mm thick

tree 15 m. tall, 2.5 dm. thick,
 leaves dark green above
 "guinea roeda" (dark sample)

→ "guinea colorada" "calusaya" (4-7 mm)

tree 10 m. tall, 8 cm. thick
 (bark had been previously
 removed from lower part), leaves
 dark green, ~~flodes~~ stems
 and petioles + midvein red,
 flowers purple, hair on corolla
 lobes white bark thick,
~~reddish~~ somewhat split,
 bitter, whitish but
 quickly oxidizing brown.
 (dark sample) 3-4 mm.

liana, fls. white.

erect, fls. white, corolla
 hairy within.

erect, ~~fl~~ leafless, fls.

white, nodding
 clump of sprouts from stump,
 fls. white, edges of corolla
 lobes ^{thin} crisp. fruit immature.

19576 *Poly podium*
on tree-trunk

77 *grass* (not grass)
cleared slope abundant

78 *Gnaphalium*
open grassy slopes

79 *Marrubium vulgare*
open grassy slopes

Dec. 26 - Hillsides above Colombia,
Huila 3100 - 3500 ft.
overgrazed, eroded, almost
treeless steep slope

80 *Salvia*

81 *Festuca Aristida*

82 *Delilia biflora*
sides of gully

83 *Croton*
sides of gully, under tree

84 *Propphyllum ruderale*
sides of gully

85 *Euphorbia*
sides of gully

86 *Tillandsia*
on *Bursera* tree (with ^o 19577 + ^o 19578)

87 *Tillandsia*
on *Bursera* tree (with ^o 19586 + ^o 19587)

88 *Tillandsia*
on *Bursera* tree (with ^o 19586 + ^o 19587)

89 *Chloris*

90 *Tricachea*
abundant

gronds stiff

up to 2 m. tall
"clumps", said to be very good
stock feed.

"vitavita", infusion very
bitter, used for fever.

"salvia", used for paralysis

flowers blw. not eaten by stock

tuft, culms spreading

flowers yellow

"mosquero"

glaucous, very bad odor.

birds pink glands white.

in large clumps, bracts red,

flowers yellow.

abundant

clumps, bracts red, fls. blue

small tufts

tufts, culms spreading & erect.

19591 *Setaria*
 42 *Waltheria*
 93
 94
 5 95 *Phoradendron*
 parasite on *Prosopis* sp. (?)
 96 *Borreria*
 bare sides of gully
 97 *Tridax procumbens*
 gully
 98 *Gnidia*
 side of gully
 99 *Dalechampia*
 rocky gully
 19600 *Acalypha*
 rocky gully
 01 *Boerhaavia*
 rocky gully
 02 *Abutilon*
 one of the most abundant
 plants on slope
 03
 04
 05 *Abutilon*
 one of the most abundant plants
 on slope

tuft, culms spreading
 stems ascending, to 0.7 m., flowers
 yellow
 - strongly aromatic, fls. white,
 fls. white.
 bright green, ripe fruit orange.
 fls. white
 involucre purplish, rays
 white, disk yellow.
 prostrate, rooting at nodes
 prostrate, flowers greenish,
 between large bracts
 low shrub, browsed by
 stock.
 perennial herb, up to 1 m.
 tall, many stems from
 one root, ascending, fls.
 deep rose.
 fls. deep orange, plant
 evidently unpalatable to
 stock.
 erect, flowers yellow
 shrub 1.5 m. tall, fruit
 yellow. herbage with an
 unpleasant odor when broken
 erect, fls. orange-yellow, plant
 evidently unpalatable to
 stock.

Dec. 26 - Colombia, on Rio Ambies,
Huila
3000 ft.

broad stony bed of river

L 19. 606 *Borreria*

L 307 *Richardia*

L 208 *Euphorbia*

L 209 *Cyperus* (*Cyphella*) branched
at base

L 10 *Ipomoea*

L 11 *Vernonia*

L 12 *Vernonia*
abundant

L 13 *Ipomoea*

L 14 *Borreria*

Dec. 28 - ~~upper~~ Quebrada Ariari
above Galilea, Fracción de Galilea de
Mun. de Colombia, 23 km. s.e. Cúcuta, Huila

Rain forest on side of canyon, ^{2000-2500 m.} 6661 ft.

L 15 *Psychotria*
along trail in forest

L 16 *Galium* (*Albanium*) *hypocarpium*
edge of clearing

L 17 *Lycopodium*
on tree in recently felled forest

erect, fls. white

- prostrate, fls. white

- ascending, arching, glands white

- tufts between stones, creeping

- plant on bank, herds green

- prostrate extensive spreading
vine, fls. lavender

- herb 2 m. tall, fls. purple

- bush 2 m. tall, much
branched, forming dense
masses, fls. white

- prostrate branching vine
several m. long, fls. bright
yellow, stigma bifid, lobes
sharply diverging some-
what enlarged.

- fls. white

fallen tree with sprouts
along trunk, fls. white,
fruits green

vine climbing in bushes,
fruit fleshy, orange

19617a *Sphenomeris*

on tree in recently felled forest

18 18 *Cinchona pubescens* Vahl
abundant in forest just
above streamanal. Bellis:
g+c 0.7%
ci 0.8%
qui in
TC 1.5%19 *Palicourea*
wet forest20 *Gynandropsis*
wet soil21 *Cinchona pubescens* Vahl
wet forestanal. Bellis:
g+c 1.1%
ci 2.0%
qui in
TC 2.1%22 *Hoffmannia*
wet forest23 *Ladenbergia*
wet forestanal. Bellis:
no more than
trees of
Cinchona
albataoids.24 *Cinchona officinalis*
wet forest, rare.anal. Bellis:
g+c 4.1%
ci 0.9%
qui 0.1%
TC 4.6%25 *Fuchsia*
in brushy clearing26 *Piper*
wet forest27 *Psychotria*
wet forest, on groundtree 15 m tall, 2.5 dm thick,
some leaves red, all with
slightly reddish veins,
fruit immature, dark
bitter. (Bark sample)tree 5 m tall, spreading
infl. yellow, fls pale yellow
herb 1.5 m tall, flowers red, fruit
immaturetree 15 m tall, 3 dm thick,
some leaves red, veins
of others slightly reddish,
fruits immature (Bark sample)erect herb, 1.5 m tall, fls.
reddish yellow15 ft. tree 2.0 m tall, 3 dm thick,
fruits mostly immature.
(Bark sample)sprouts from an old tree
broken off about 4 m. up
no fertile trees seen. leaves
green (Bark sample)vine, fls. pendent, scarlet
shrub 1 m. tall~~Psychotria~~, erect, fls. white

L 19623 *Cinchona officinalis*
small group in wet forest

L 29 *Vaccinium*
epiphytic in wet forest

L 30 *Phytolaea bogotensis*
abundant in clearing

L 31 *Psychotria*
wet forest along trail

L 32 *Brenesia*
weed in clearing

L 33 *Gymnandropsis*
~~incomosa~~ weed in clearing

L 34 *Psychotria*
along trail in wet forest

L 35 *Lauraceae*
along trail in wet forest

L 36 *Blechnum*
edge of clearing

L 37 *Asplenium*
edge of clearing

Dec. 29 - Small affluent of Guadalupe
Ariari on south side below Galilea,
Fraccion Galilea de Mun. de Colombia,

Huila

small patch of woods on slope 3000 ft

L 38 *Dennstaedtia*

L 39 *Phyllanthus*

L 40 *Montanoa*

woof. very small tree, sterile, veins
of leaves reddish.

2500 ft. pendent vertically from
trees, up to 5 m long,
fls. coral red with green tips.
herb, n. tall, fls. pink, fruit immature
erect herb, 1 m tall,
fruit white, fleshy
fls. white

erect herb 2 m tall, flowers
dark red, racemes erect, fruits
green

herb 1.5 m. tall, fls. and
fruits orange.

vine-like, tangled in
undergrowth

prolific strongly ascending
from an erect rhizome.

liana climbing in trees, fls.
whitish

fls. pale green.

small tree 5 m. tall, 1 dm. thick,
rays white, disk yellow

Nov. 29 - Ridge bet. Guavada
Ariari and Guavada San Blas,
Traccion Galilea de Mun. de Colombia
Huila
Patch of wet woods on 6800 ft.
steep slope below?

19641

L 3 42 *Palicourea*L 3 43 *Hoffmannia*L 3 44 *Psychotria*L 3 45 *Cory*
clearing, at edge of woods abundantL 3 46 *Quercus*
abundant, major part of woodsL 3 47 *Palicourea*L 3 48 *Calycoenthaliparuna*L 3 49 *Lasiaci*L 3 50 *Palicourea*L 3 51 *Lobelia*
clearing, along trickle of water.

erect shrub with main
stem and horizontal branches,
fruit green

shrub 1.5 m. tall, fl. bright
purple infl. green.

erect shrub, fls yellow
fruit maroon, fleshy.

erect unbranched or sparingly
branched herb, fls. and
fruits white.

subfuscent herb 2.5 m.
tall, fls yellow "flora amarilla"
tree 12 m. tall

shrub 3 m. tall, thrys. purple,
fruit green, immature

semi scandent shrub, 5-6 m.
long, leaning on other shrubs,
odor of lemon-grass, fruit
reddish, pyriform, fleshy.

low tangles in undergrowth.
shrub 2 m. tall, infl. green.
fls. flesh color, mature fruit
black.

erect herb 1 m. tall, cutiflous,
fls. green, corolla lobes tipped
with maroon

✓ Dec. 29 - ridge s of Quebrada
San Blas, Galilea trail, Fracc.
El Valle de Mun. de Colombia,
Huila
5000 ft.

✓ 19492 *Diclienia fruticosa* (Willd.) O.K.
rocky place

✓ 53 *Viburnum*
fence-row, common

✓ 54 *Borreria*
pasture, common

✓ 55 *Diodia*
pasture, rare

✓ 56 *Myrsine*
fence-row, common

✓ 57 *Wernmannia*
fence-row, abundant

✓ 58 *Eugenia*
fence-row, abundant

✓ 59 *Habenaria magnifolia*
fence-row, rare

✓ 60 *Totomia Escobedia*
P.D. 2222

✓ 61 *Alloanda*

~~62~~ *Lippia*
Rocky knob with bushy
vegetation

✓ 62 *Lippia*

✓ 63 *Liphocampylus planchonii* ^{var.} _{sd. R. M.}

fl. white, fruit immature
small tree, fruit black.

fl. white

fl. pale lavender.

small tree, fruit immature
"cucharo blanco"

small tree, 5 m. tall, fls.
whitish, "enemis" Par Allan

small tree, 5 m tall, 5 cm.
thick, ripe fruit purple-black.

tree 10 m. tall, 2 dm. thick,
fruit clusters somewhat
pendent, leaves glossy (dark purple)
"cascarilla"

erect fls. white used for
coloring food.

fls. eaten for sourroat"
vine creeping on ground and
limbing small bushes,
fls. yellow, reddish outside
succulent herb, 0.7 m.
tall, fls. bright red.

Dec 29 - slope on north side
of quebrada del Chical,
E of Colombia, Huila
Dry, sparsely wooded slope 4000 ft

19443

Myrsinaceae

64 Capparis

L

65

66 Zanthoxylum

Jan 6, 1943 - Bogota Water Works,
San Cristobal, just south of
Bogota, Cundinamarca 3800 ft.

Brushy slopes, somewhat
grazed

67 Eupatorium

L 68 Stevia

69 Ectemnius coarctata (R. & P.) Bkh.

70 And
wet placeL 71 Jardillia
bar spot

"Carallan"
bush 3 m tall, fruit black.
small tree 5 m tall, fls white,
leaves finely pellucid-reticulate,
coriaceous

small bushy tree, fls yellow.

small bushy tree or shrub,
leaves aromatic when broken,
fruit immature "tachuelo"

plant with resinous odor,
almost acaulescent, leaves
in a large rosette, stiff,
gray, inflorescence erect,
rays bright chrome yellow,
disk brownish yellow.

shrub less than 1 m tall, fls.
white

solitary or in very small
clumps, flowers lavender-blue.
petals, sepals mesochlor
pal lavender-pink, apiculus
with body yellow, wings white.
leaves fleshy, distichous.
more or less prostrate, calyx
deep purple, corolla greenish-white.

144

19113 - Colombia

19677 *Polygonum segatum* HBK
edge of rivuletdet.
M.C.P.877 *Rubus*279 *Gaultheria*75 *Galium*

weed in edge of water works lawn.

76 *Castilleja*
in edge of brush and in
water works lawn.377 *Impatiens*

weed in water works lawn

78 *Carex*
edge of rivulet79 *Solanium*380 *Borreria*381 *Lepispermum*82 *Rubus*383 *Borreria* (cont.)

road cut

84 *Alchemilla*

roadside

85 *Vernonia*

Cundinamarca

145

erect, fls. pink

sacs arching, forming
dense tangles, plants
sticky, glandular, fruit
mostly immature, fls
pale pinkflowers white, fruit
white, fleshy.

prostrate, fls. pink green

calyx and bracts green at
base, scarlet distally,
galea bright green, range
along lower edge.
erect, fls. salmon-pink.large clump, calyxes
almost erect.

spreading shrub 2 m. tall, fls.

white, fruit immature.

prostrate to erect, fls. white

shrub, 1 m. tall, very sticky,

corymbs pendent, fls. pink

low brush, 0.6-0.8 m. tall, tangled,

fl. white - sp. fruit black,

mostly immature,

no primocanes seen.

prostrate, fls. white

within purplish without

prostrate to ascending

shrub, 1 m. tall, infl. very sticky,

infl. deep red-purple, fls. lavender-
pink.

Jan. 10. - Foothills above
Bogota just north of mouth
of Quebrada el Bisco Cundinamarca
rocky ridge covered with brush. 2700 m.

19686 Gnaphalium

87 Gnaphalium

Ann. Mo. Bot. Gard. 55: 245, Fig. 19, 1968

88 Polypodium erythrosplenium var. villosum A. N.
steep slope, sheltered by
bushes.

89 Muchlenbeckia tannifolia HBK.

Evans
type

90 ~~Gaultheria~~
abundant

91 Smilax
steep slope

92 Umbellif.
steep slope, sheltered by bushes

93 ~~Umbellif.~~
steep slope, sheltered by bushes

94 Asplenium
steep slope, sheltered by bushes

95 ~~Corallorrhiza~~
steep slope, sheltered by bushes, rare

herb 2 m tall, growing up
through brush, branching
about half way up,
leaves green above.

low bushy, up to 1 m.
tall when in bushes, heads
slightly yellowish.
(sample for analysis)

fronds erect or somewhat
spreading, sori yellow.

low vine, tangled in
bushes, buds reddish,
flowers green with yellow
stamens.

shrub 2-4 m. tall, flowers
and racemes bright coral-
pink, mature fruit black,
- fleshy (very few mature).
vine tangled in shrubs,
flowers green.

fronds erect

plants ascending, fleshy,
flo. bright magenta

148

1943 - Colombia

19696 *Rhynchospora*
steep slope

97 *Palicourea*
steep slope

98 *Bidens*
steep slope

99 *Castilleja*
steep slope

19700 *Palicourea*
steep slope

" 01 *Miconia*

" 02 *Hedychium*
common

03 *Galium*

04 *Didymocarpus*
steep slope

05 *Vallea stipularis*
steep slope

06 *Befaria*

Cundinamarca

149

scape ascending, arching,
- plant ~~several~~ ^{somewhat} caespitose,
shrub 1 m. tall, inflorescences
purplish, corolla deep
red-purple.

herb up to 2.5 m. tall, ~~white~~,
rays bright yellow, reddish
at base, disk brownish
orange.

herb, m. tall, distal
part of upper bracts and
calyx vermillion, galea
green with lower edge
yellow.

shrub 5 m. tall, leaves
glossy, stiff, paler beneath,
ripe fruit glossy, orange-yellow.

shrub 2 m. tall, flowers
white.

shrub 0.4 - 0.5 m. tall, flowers
white, corolla lobes purple
outside, especially toward
tips.

vine-like, tangled in
bushes.

erect, shrubby at base, 3 m. tall,
flowers deep magenta,
leaves fleshy, distichous,
center of lip orange, fruit
ovoid.

shrub 1.5 m. tall, fls. rose,
low shrub, flowers bright
rose, very sticky.

150

1943 - Colombia

19707 Berberis

L 08 *Siphocampylus columneae*
common det. P. Mev.9 09 *Orchis*
abundant on ledges and in crevices10 Jan 18 - hill about 1 km. south
of ^{Lagartos} Tortuosa, 20 km. e. of Neiva
Huilabrushy vegetation on soil
formed of ~~weathered~~ decomposed
sedimentary rock.10 *Diodia*
road cut11 *Dichlioxia fruticosa*12 *Eupatorium*13 *Borreria*
rather abundant14 *Babbria*15 *Borreria*16 *Antennaria*17 *Gaura*
sp.18 *Gaura*

Cundinamarca - Huila 151

shrub about 1 m. tall,
leaves stiff, white beneath,
flowers orange-yellow.shrub up to 2 m tall,
corolla orange with green
lobes.flowers greenish yellow,
with an unpleasant odor.
leaves fleshyprostrate, stiff, ~~erect~~
much branched; flowers
pale lavender.erect, flowers white
erect herb, up to 1 m.- tall fls. purplish-white
extensively branching- herb, flowers white
flowers white or very pale
lavender.weakly ascending, fls. white,
tufts, rhizome short,
prostrate, fruiting spike
ascending erect.- shrub 1 m. tall, heads yellow
lactiferous vine twining over bushes, fl. rich yellow,
reddish outside, fruit immature, tuberous.

19719 *Enya*20 *Lantana*
roadsides21 *Richardia*Jan. 17 - Finca Cedrales, on Rio
Fortelacillas above Vega
Larga.

Huila
rather weedy coffee plantation
without much shade, a
few trees along the top of the
cliff along the river, 3500m

22 *Blechnum*
rock wall between trail
and plantation23 *Nephrolepis*
rock wall between trail
and plantation24 *Iresine*25 *Drymaria cordata*
in soil pocket on rock, one plant seen

erect herb, 1 m. tall, heads
whitish
- shrub less than 1 m. tall,
flowers violet, fruits
deeper purple, (fruits
from different plant than
flowering twigs).
prostrate, fl. very pale
lavender, involucres
whitish outside.

ponds and bogs, plane.

herb, main stem prostrate,
branches erect or ascending,
"contra fuero" ~~no~~ leaves
rubbed and crushed in
cold water for red irritation
skin resulting from kidney
trouble.
fruтиng pedicels sticky.

197.26 *Borreria*
 197.27 *Vitis*
 in trees at edge of ravine
 197.28 *Olivera*
 197.29 *Tournefortia*
 edge of cliff
 197.30 *Hamelia*
 edge of cliff
 197.31 *Cissampelos*
 edge of cliff
 197.32 *Galinsoga*
 weed
 197.33 *Clematis*
 197.34 *Trumpetella*
 197.35 *Morossia*
 197.36 *Hamelia*
 weed in plantation, common
 197.37 *Oplismenus*
 carpeting ground in plantation
 197.38 *Salvia*
 weed, common

fls. white.
 woody vine, climbing in trees,
 shrub about 0.5 m. tall, much
 branched.
 small tree 5 m. tall, flowers
 white.
 shrub 2 m. tall, fls. orange
 red, fruit dark red, shiny
 when ripe. All trees examined
 have leaves ternate.
 vine climbing in trees,
 fruit green, leaves glaucous,
 beneath.
 disk yellow, rays white.
 vine climbing in trees
 flowers white.
 erect suffrutescent herb
 almost 2 m. tall, branched
 only above. flowers yellow
 suffrutescent herb 1 m. tall
 fls. dark indigo, with yellow to
 greenish brown keel. ~~yellow~~
 tree 5-6 m. tall, flowers orange
 red, fruit immature; all
 plants examined have
 ternate leaves.
 prostrate, fruiting culms
 ascending.
 flowers blue.

✓ Jan. 18 - Finca Yucates, on Rio
Tortelacillas

Huila

wet mossy forest on steep
side of valley

19739

Cinchona pubescens Vahl
side of ravine above river

40 *Cupressus*

in pasture near house

41

Cinchona pubescens
side of ravine above river

42 *Palicourea*

side of ravine above river

43 *Eupatorium*

weed in pasture

44 *Fuchsia*

side of ravine

45 *Eupatorium*

steep slope, edge of wood

small tree $\frac{1}{2}$ - 7 m. tall 6-8 cm.
thick, leaves green beneath,
midrib and veins reddish,
sterile, stipules erect or
somewhat spreading, then
spreading much more
just before falling. "guino"
large old tree 15 m. tall, 7 dm.
or more thick.

small slender tree 5 m.
tall, leaves roseate-coppery
beneath, stipules first
erect, then becoming red and
strongly spreading; sterile. "guino"
small tree 5 m. tall, thyrses
yellow, flowers yellow,
fruit immature.

suffrutescent herb $\frac{1}{2}$ - 1.5 m.
tall, somewhat irregularly
branched, branches ascending,
fls. purple.

vine-like shrub climbing
in lower branches of trees,
flowers pendent, as many
as 6 or 8 in a cluster, ripe
fruit fleshy, purple.

suffrutescent herb 1 m. tall,
fls. white

19740

47 *Palicourea*48 *Lanicula*

trail on steep slope

49 *Psychotria* sp. sp. -
along trail on steep slope50 *Psychotria*51 *Poly podium*52 *Asplenium*53 *Psychotria*54 *Cinchona pubescens* Vahlsmall tree, somewhat aromatic
when broken, fruits mostly
immature.shrub 3 m. tall, scarcely
branched, fruits mostly
immature, bluish when mature.
strong odor when brokensuffrutescent herb about 1 m.
tall, fls. white.shrub 2.5 m tall, fls. white,
fruit immature.climbing up trunk of
Cinchona tree.epiphytic in Cinchona tree.
woody vine climbing in tops
of trees, flowers white.Anal. Bellis:
8% 1.2%
ci 0.2%
qui in
TC 1.4%
Tree 18 m. tall, 2 dm. thick,
leaves with veins reddish
beneath, stipules erect,
becoming reflexed. Bark
whitish, oxidizing brown
(Bark sample). Tree sterile.slender shrub 3 m. tall,
fls. bright purple.semisclandent shrub,
buds white, fruit large,
fleshy, white.slender shrub 4 m. tall,
fls. white, fruits immature.Tree 10 m. tall, 1 dm. thick,
leaves roseate-coppery beneath,
stipules erect, then spreading
and becoming reddish (bark sample)Anal. Bellis:
8% in
ci 0.4%
qui in
TC 0.4%55 *Palicourea*56 *Pal.*57 *Psychotria*58 *Cinchona pubescens* Vahl.

Jan. 19, 1943 - Finca Cedrales,
on Rio Fortelacillas, Huila

pasture on steep slope with
small patches of trees in
ravines and on steepest places.

19759

~~steep~~ bank cut bank above trail
Dioscorea

in trees on steep slope

61

~~steep~~ bank

cut bank above trail

62

Dioscorea

in trees on slope

63

Tournefortia

open slope below trail

64

Borreria

65

Capsicum annuum

66

cap

Jan 19 - Valley of Rio Fortelacillas
2 or 3 km. above Finca Cedrales,

Huila

Pasture with moist forest
along streams.

67

Solanum

in very small open
ravine

spreading

vine climbing in trees, staminate
flowers greenish, lvs. glossy
prostrate, fls. white

vine climbing in trees,
pistillate fls. greenish,
leaves glossy
low shrub, spreading,
fls. white.

small tree, fls. white 5 m.
tall, 8 cm. thick, fls. white
fruit green.

small tree fls. brownish.

suffrutescent shrub 1.5 m. tall,
even stem covered with prickles,
fls. yellow fruit variegated, green
and greenish white, immature.

162

1943 - Colombia

19768 Pilea
bottom of tiny open ravine

1 69 Pilea
bottom of tiny open ravine

1 70 Drymaria cordata
moist open place

1 71 Salvia
along stream in wooded ravine

1 72 Borrichia
cut bank above trail

1 73 Salvia

1 74 Galium (helbunium)
grassy bank

1 75 Pteridium aquilinum
abundant in pasture

1 76 Duschinea indica
moist open places

1 77 Farsetia
recently cut over land, grown
up to bushes and canes, 2-3 m.
tall.

1 78 open pasture

1 79 recently cut over land, grown up to
brushes and canes 2-3 m tall

1 80 recently cut over land, grown up
to bushes and canes 2-3 m tall

Peru

163

stems fleshy

stems fleshy, translucent

" "

" "

" "

" "

mplex.

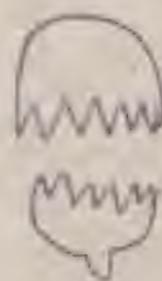
unit

ring

Braunthal, Julius.
Need Germany survive? By Julius Braunthal. With an introduction by Harold J. Laski. London, V. Gollancz Ltd, 1943.
256 p. 19th.

1. World war, 1939- —Peace. 2. World war, 1939- —Germany.
1. Title. 43-14610
Library of Congress DSIR.1367 1943 (2) 940.531

Dickinson Robert Vic. 1900



shrub 1 m. tall, fl. orange.
thicket 1 m. tall, fl. yellow.
woolly vine, fruits immature

HISTORY AND DESCRIPTION (except American)

162

1943 - Colombia

19768 Pilea
bottom of tiny open ravine
169 Pilea
bottom of tiny open ravine
170 Drymaria cordata

19889 ~~Lithospermum~~ Heliotropium
19889 Uncaria mutabilis

78

open pasture

79

recently cut-over land, grow up to
brushes and canes 2-3 m tall

80

recently cut-over land, grow up to
brushes and canes 2-3 m tall

fruits

163

stems fleshy
stems fleshy, succulent
prostrate to ascending,
pedicels sticky
erect herb, m. tall, others
up to 2 m., fls. scarlet,
fls. white
fls. crimson
fruits orange
rhizomes about 1 dm. or less
underground, horizontal,
extensively creeping
Many other finds very
much larger and more complex
prostrate, fls. yellow,
petals very caducous, fruit
red, fleshy, globose.
canes up to 3 m tall, arching

shrub, m. tall, fls. orange.

thicket 1 m. tall, fls. yellow.

woody vine, fruits in whorls

19768 *Pilea*
bottom of tiny open ravine

169 *Pilea*
bottom of tiny open ravine

170 *Drymaria cordata*
moist open place

3 71 *Salvia*
along stream in wooded ravine

172 *Borreria*
cut bank above trail

2 73 *Salvia*

174 *Galium (Helbunum)*
grassy bank

175 *Pteridium aquilinum*
abundant in pasture

ab 2 76 *Duchesnea indica*
moist open places

3 77 *Lariaceis*
recently cut over land, grown
up to bushes and canes 2-3 m.
tall.

78 *Psychotria*
open pasture

3 79 *Psychotria*
recently cut over land, grown up to
bushes and canes 2-3 m tall

30 *Psychotria*
recently cut over land, grown up
to bushes and canes 2-3 m tall

stems fleshy

stems fleshy, pubescent

prostrate to ascending,
pedicels sticky

erect herb 1 m. tall, others
up to 3 m., fls. scarlet.

fls. white

fls. crimson

fruits orange

rhizomes about 1 dm. or less
underground, horizontal,
extensively creeping.

Many other fronds very
much larger and more complex.

prostrate, fls. yellow,
petals very caducous, fruit
red, fleshy, globoso.

canes up to 3 m tall, arching

shrub 1 m. tall, fls. orange.

thicket 1 m. tall, fls. yellow.

woolly vine, fruits in ovaries

✓ Jan. 19, 1942 - Las Cruces,
summit of cordillera oriental,

Meta - Huila

Rain forest on ridge 7500 ft.

19781 Palicourea

82 Viola
mossy rocks beside trail

83 Bomarea
in low brush

✓ Jan. 19, - Headwaters of
Rio Fortelacillas below
Las Cruces.

Huila

rain forest on steep slope 7300 ft.

1. 84 Begonia

✓ 85 Fuchsia
rare, only 2 plants seen

✓ 86 Centropogon

✓ 87 Fabellia

✓ 88 Bomarea
common from summit down 1000 ft.

small tree 6 m. tall, inflorescences
purple, pendent fls. purple,
prostrate, fls. lavender
with purple-black
stripes on lower petal.
fls. coral red, leaves
glaucous beneath.
vine-like.

erect herb, 1.5 m. tall,
flowers scarlet
scandent shrub,
several m. long, apparently
epiphytic; fls. ~~scarlet~~
orange-vermillion.
fruit immature.

weeds shrub 2-3 m. long,
fls. pale salmon with
yellowish corolla lobes,
anthers purplish

erect herb, 1.5 m. tall, ovary
square in x section, corolla ^{calyx} scarlet
erect or ascending leaves
glaucous beneath, fls. scarlet.

19789 *Nertera granadensis*
on mossy log.

190 terrestrial, in moss, rare

191 *Scutellaria*

Tall rain forest, mostly green
7600 ft.

192 *Polypodium*
epiphytic

193 *Vaccinium*

194 *Palicourea*
(with W. R. Filcox)

195 *Nertera granadensis*
abundant, forming a carpet
along both sides of trail

196 *Ladenbergia macrocarpa*

creeping and pendent, berries
scarlet.

scape red, flowers scarlet.

erect herb 1.5 m. tall.
fls. red, purplish toward
tips.

pendent

shrub 2-3 m. tall.

shrub, infl. purple,
fls. yellow. fruit immature

prostrate, fruit scarlet.

and. Bellis:
no monilia
tree of
cinchona
affine

tree 15 m tall, 2.5 dm. thick
(bark sample) fruit immature
and shattered. stipules calyptate

Jan. 19 - Rio Fortelillas above
Yacales

wet forest on slope 5000 ft

197 *Cinchona pubescens* Vahl
fairly common bet. 4000-5000 ft.

and. Bellis:
B.C. 1.0%
C 0.4%
FRI T
TC 1.4%

tree 15 m. tall, leaves
reddish beneath, red veins,
bark very thick below
(bark sample), pinkish white
stipules at first green
and erect, then red and
reflexed.

168

1943 - Colombia

19798 *Viola*
mossy bank beside trail

19800 *Liparuroa*

19800 epiphytic on *Cinchona pubescens*

19801 *Hydrocotyle*
forming carpet along trail

19802 *Ladenbergia*

Jan. 20 - Valley of Rio Fortelacillas
5 km. above Vega Larga,

Huila

woods on steep slope above
river 3000 m.

19803 *Cosmibuena*
common for some distance along trail

Jan. 20 - Valley of Rio Fortelacillas
7 km. above Vega Larga

Huila 2500 m.

19804 in thicket near river

Huila

169

prostrate, fls. pale lavender
with deep purple spot on side
lower petal.

small tree 5-6 m. tall, branches
drooping, fruits mostly
below leaves, pyriform,
flesh colored. plant
with ~~slight~~ odor somewhat
like lemon grass. lvs.
very rugose.

fruit green. lvs. craceous, glossy

anal. Bellis:
no more
than traces
of *Cinchona*
alkaloids.

tree 3 m. tall, 10 dm. thick,
fl. white, jasmine-scented,
fleshy, fruit ^{both} immature and
shattered. Bark whitish
(Bark sample)

anal. Bellis:
no more
than traces
of *Cinchona*
alkaloids.

tree 15 m. tall, 3 dm. through,
~~bark~~ in bud only bark
thick and juicy, peeling
fairly well. (bark sample)
(corolla lobes imbricate in bud)

weak shrub 2 m. tall, fls.
pink, anthers whitish-brown

170

1943 - Colombia

✓ Jan. 20 - along Rio Fortalecillas below
Vega Larga

Huila
2500 ft.

19805

✓ thickets near river

✓ Jan. 20 - Rosa Blanca, just e. of Palacio,
w. side of valley of a small
affluent of Rio Fortalecillas
shaded bank above trail

Huila

06 Aneimia

✓ Jan. 20 - hill above Palacio,
~~about~~ e. of Rio Fortalecillas,

Huila
3000 ft.

07 dwarf forest

✓ 08 Mida. P.
dense brush on rather moist
hillside, common.

✓ Jan. 20 - to hill w. of Palacio,
s. of Rio Fortalecillas,

brushy hillside

Huila
2000 ft

09 Ladenbergia magnifolia

10 Borreria

bare ground along trail

11 Declieuxia

bare ground along trail

12 Cassia

Huila

171

scandent shrub, orange fls.

shrub 3 m. tall, strongly
scented, somewhat like
lemon grass.

shrub 1 m. tall, fl. rose pink

clump of stump sprouts about
4 m. tall.stems ascending, fls. violet
or deep lavender-
fls. white.small bushes with flat tops, branchlets
more or less in one plane, fls. large, bright yellow.

172

1943 - Colombia

19313 *Psychotria*
14 *liparuna*

Jan. 20 - hill n. of San Antonio, Fortalecillas

Huila

3000 ft.

brushy hillside

15 *Randia*16 *Andania*

vertical earth bank above streamlet

17 *ps...*Jan. 20 - hill ^{San Antonio} s. of Fortalecillas,

s. of Río San Antonio, 20 km. e. of Neiva

Huila

3000 ft.

weedy thickets, second growth, near river

18 *Verbenaceae*19 *Sida*20 *Dichromena*

shaded bank along old trail

21 *Croton*

along old regrown trail

22 *Elephantopus*

along old overgrown trail

Huila

173

shrub 1.5 m. tall, fl. white
shrub 1 m. tall, somewhat
lemon-grass scented, fruit
pyriform, flesh-pink, immature

erect shrub 2 m. tall, fl. white
rosettes

fruited culms erect

aromatic shrub, fls. purple, others
seen a small tree
suffrutescent herb 1.5 m. tall,
fls. very small, narrow
small tufts, involucre white
at base.

others seen late, much larger

fls. pale lavender, almost
white

✓ Jan. 22 - Neiva, Huila 470 m.
roadsides and cultivated places in
low ground.

19823 *Momordica charantia*
abundant weed

19824 *Cochlosia*

✓ Jan. 24 - Rio Fortalacillas below
Vega Larga, above Palacio

Huila

2500 ft

✓ 19825 *Ladenbergia magnifolia*
steep ravine above river, thin woods

O Jan. 25 - San Antonio Fortalacillas,

Huila

2600 ft

✓ 19826 *Passiflora quadrangularis*
climbing in tree in back yard
of house

✓ vine climbing over fences, bushes,
etc. fls. yellow, fruit orange-
red when mature, splitting
into 7 fleshy valves, seed of
seed red, main stem longitudi-
nally corded-striate, somewhat
flattened. "subi cohí" or
"yerba de culebra" (because
snakes supposedly eat
the fruits) (sample sent to
Washington).

✓ suffrutescent herb, fls.
yellow, reddish toward
aper, "acobaz real", leaves
rubbed up and eaten for
dysentery.

✓ tree 6 m. tall, a grown stump
sprout, 10 cm. thick, fls.
white, fragrant, ♀

✓ vine, fls. white, fruit pale
green, inflated, "cardinato"

Jan. 25 - Hill s. of San Antonio
Fotolacillas, s. of Rio San Antonio
20 km. e. of Neiva

Huila
3000 ft

second growth woods, broken
by bushy places and cultivated
plots.

19827 *Gonzalagunia*

28 *Borreria*

recently disturbed roadside, others
bare ground.

29 *Hydrocotyle*

small patch on edge of road-cut

30 *Hypoxis*

single plant in wet grassy place

11 31 *Guadua*

wooded ravine

This is the common structural
or timber bamboo in this part
of Colombia. Its uses are practically
innumerable. It is one of the
main building materials in
poorer houses, forming the
cross lacing in the mud-and-
wattle type.

shrub 2 m. tall, fls. white
stems purple-black,
main one erect, fls. white.

prostrate, forming a close mat
by strongly rooting at nodes,
fls. greenish-white
fl. yellow

canes ^{green}, up to 18 m. tall, 15 cm
thick, ^{internodes 7.5 cm long} very strong and woody,
tops arching, bushy, stiff,
pointed divaricate buds arising
at lower nodes, elongating into
stiff, branched, vine-like branches
up to several meters long,
very spiny, forming dangerous
tangles, further up the culm
these become leafy branches.
The culms arise singly at
intervals of 1 m. t., apparently
from a branched running rhizome,
never in clumps; specimens
all from lower branches, leafy
and fruiting ones arising about
3 m. high, sheaths from 4th node
from ground imbricate, bases
on each side overlapping, 1/3 times around culm.

19832 *Eugenia*
rocky bushy slope, abundant,
characterizing a zone 200 m. or
more in altitude.

33

Eugenia
common weed in grazed place

34

Eugenia
common weed in grazed place

35

Ladenbergia magnifolia
isolated tree in remnant
of forest.

36

Chlorococca alba
remnant of forest

37

Riv
Jan. 25 - drainage of Guadalupe
los Ceibas, s.w. of San Lázaro
Fortalasillas, road to Neiva above
Platanillo. 10

Huila

2500 ft.

grassy or over-grazed and bushy
hillsides.

38

Anemis

cut bank above road, rocky earth

39

Caravallia

~~sp. but~~ common

shrub 2 m. tall, leaves
deflexed in one direction
(downward) from the branchlet,
ripe fruit black (very
few ripe).

herb 1 m. tall or less, fls.

purple

branched suffrutescent herb,
fls. large, butter-yellow
with maroon center.

tree 10 m. tall, 7 dm. thick,
few flowers left, these white.

small tree with weak
branches, fls. cream-color,
pointing downward, fruit
strongly compressed.

erect herb 1 m. or more tall, fls.
bright lemon yellow.

erect, arching shrub, leaves
silvery, flowers violet-purple.

180

1943 - Colombia

19340 *Gleichenia*
cut bank above road
1. 41 *Dedivisia fruticosa*
disturbed place
1. 42 bank of road cut
43 *Leptophis*

181

fls. white

prostrate, hanging over
edge of cut, fls. white.
strong-scented, spreading
almost prostrate, fls. orange.

182

183

Coll. Rafael Hurtado L.

on. *Cinchona pubescens*
above Timba, near Cerro Mayor
Valle (ca 2000 m)

an. Poqueria ^{near} Santa Rosa, Upper Cauca, Colombia

5.4 Verbs
Los Cristales, region of Leno San Pedro
Cord. Occ. Canarias

41. *Eleoagea*
above Divino Chicazo, on way to
Boqueron, region of Cerro San Pedro,
Cord. Occ. Canca.

24 Rondelletia
los Cristales, reg. San Pedro, Cauca

2.11. *Jesús*
parte alta, terranía de San Pedro
a San Alfonso, Cord. Oce. Canes.
"Bejuco de Buenos Aires"

s.n. *Edenbergia magnipolia*
broad. Quebradas Coloradas, loma de la
Ced Oct Mesa, Cuchillo de Montalvo,
Río Sajandi
muy abundante

Cordillera Central, e. slopes.

Tierra adentro - Inga -
San Andres - Lame ^{Moros}
Paramo de Moras, Cauca.
June 1943

1. m. ~~Red~~ Inga
2. ~~Red~~ Inga
legovia, mundo Inga
3. ~~Red~~ legovia

25 *Xa. symbolanthus*
lantana toward iramo de las Moras from up
• shores "plex rosada, lavelos crepos"

2. Brunellia
alto de Moroco

35 *Dioscorea*
Same
"raiz comestible" "Tofinambí"

1. *and*
2. *or* *legumes*
3. *soybeans*

Legomia cult

5 *Condaminea corymbosa*
Segovia

6 *Ficus*
Segovia, Madrid, Inga

7 *Ladenbergia macrocarpa*
Inga

8 *legovia*

9 *legovia*

10 *Mimosa*
Segovia

12 *Ladenbergia*
Bella Vista, San Andres, Colombia

13 *l.*
Alto San Jose, San Andres

14 *Trichomanes*
Alto San Jose, San Andres

15 *l.*
San Andres

16 *Acrogon* San Andres

17 *Ladenbergia*
San Andres

18 *'amazona de Popayán'* Colombia

19 *l.*
Bella Vista San Andres
Tulsa (Col.)

20 *l.*
San Andres

21 *l.*
San Andres
Copodd Andres river multiform

23 *l.*
San Andres

24 *Guttiarda*
Casa de Apolinar, Guatopo
Alto de San Andres

25 *l.*
~~Pentstema~~ above San Andres
Guatopo, San Andres

26 *l.*
casa de Apolinar Guatopo
Alto de San Andres

188

1943 - Colombia

27

Alto de Tumbesbogue (near the river)

27a

Tumbesbogue

28

Tumbesbogue (near the Andes)

29

~~Rio~~Puente Natural de Piedra
Same

30

Polypodium
same same

31

same same

32

same same

33

Puente same

34

Puente same

35

Puente same

36

Periploa
Puente same

1943 Colombia

j. & Granger & R. Hurtado

189

Tierra adentro, Cauca

Las Minas, Est. Silvia - Ibagué

~~Drimys~~ 2. of Parque Las Delicias

201

Palicourea

fls. blue & white

202

junc.

203 Drimys

204

Lavandula

205 Ladenbergia

206 Psychotria

207

Mycro

208

vinelike bush

209

bush

210

Ladenbergia

tree 1.7 cm. diam.

211

tree 1.6 m. tall, 20 cm thick

212

fern

190

1943 Colombia ginger & hortals

213 Trichomanes

214 Lobelia

215 Iris
shadeRio Ullucus, road out of las
Naranjos, above Inga

216 Andromeda pubescens

Las Naranjos, above Inga

217 Palicourea

"fl. blue with yellow petal"

Rio Ullucus, road from las Naranjos to Inga
Palicourea

219 Discarded

Las Julian, above Tierra Blanca

220 Ladenbergia

221 Ladenbergia

Tierras Blancas, bet Inga
& Rio Negro

222 Andromeda pubescens

Puena Vista n. above Tierra Blanca

223 Passiflora

224 Andromeda pubescens
montañas de agua Bonita

191

Tierra Blanca

Quetzalda

Buenavista, above Tierra Blanca
Cinchona227 Ficus
"uva"La Granja, Inga
Sapindus

"Cuchito mantecilla"

— Buena Vista alt. 2200 m.

229 Equisetum

192

193

194

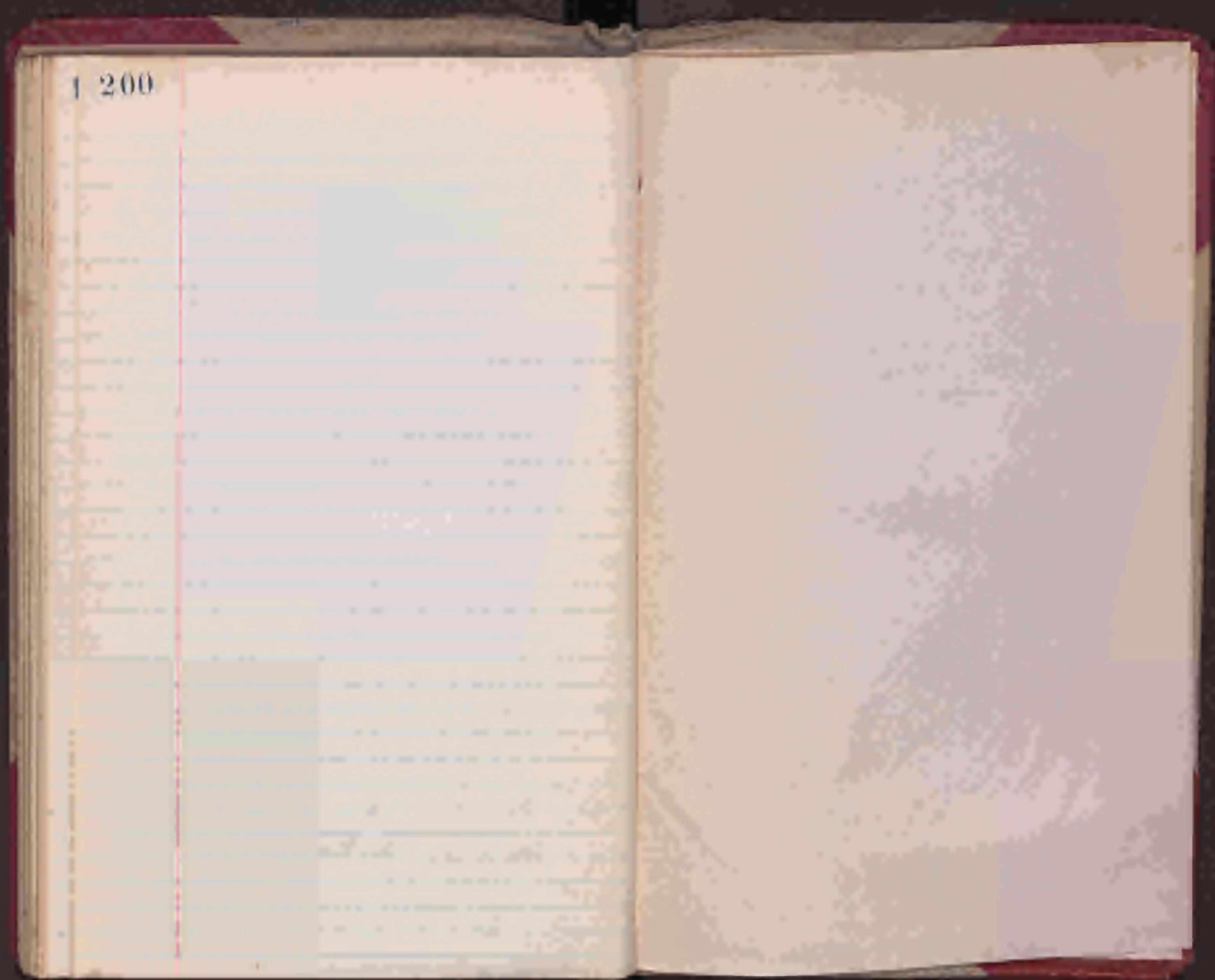
195

196

197

148

194



D. a Cabrera & other editors

Historia Natural

Vida de los animales, de las plantas,
& de la Tierra. ed. 2. 4 vols.

Inst. Gallardo de Libreria y Ediciones
Barcelona 1936

In Spanish, but a model of what a
popular but scientific natural history
should be. There should be one like
it in English. 96 pesos.

beautifully illustrated with
photos and colored paintings

